PACIFIC·PULP & PAPER·INDUSTRY

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PACIFIC PULP & PAPER INDUSTRY

The Journal of the Pacific Coast Industry

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SOUNDVIEW PLANS TO INCREASE PRODUCTION 60%

Present 200 tons daily production of bleached sulphite pulp would be increased to 320 tons daily—Proposal dependent upon Everett water bond election June 20th, and upon the approval of stockholders, June 15th

The Soundview Pulp Company of Everett, Washington, plans to immediately increase its 200 tons per day bleached sulphite pulp mill by 120 tons per day or 60 per cent, providing the citizens of Everett authorize the issuance of water bonds at a special election to be held June 20th, to finance a new pipeline from Lake Chaplain into the city. The company must be assured of ample water to support the additional production before actually beginning construction.

At a meeting of the Everett City Council May 26th, Mr. U. M. Dickey, executive vice-president and Mr. Leo S. Burdon, manager, disclosed the company's plans to provide additional steady employment for citizens of Everett and vicinity through the expansion of its plant on the waterfront. Approximately four hundred men will be employed at the peak of construction and the new unit will permanently add about one hundred and fifty men to the company's payroll.

Although the board of directors of the Soundview Pulp Company, headed by Mr. Harry H. Fair, president, of San Francisco, has approved the increase in productive capacity, there remains the necessity of obtaining stockholder ratification. The plan has already been outlined in an announcement to stockholders and a meeting has been called for June 15th at the Company's offices in San Francisco. It is understood that their ratification will be no more than a formality as the larger stockholders have already informally approved the plan.

Immediately upon approval by the stockholders and a favorable vote by the citizens of Everett at the water bond election, construction will begin, and it is anticipated that the new unit will be ready for production by March, 1937.

New Unit Will Be Separate

Although the proposed 120-ton unit, called Unit No. 2, is referred to as an expansion of the present highly successful pulp mill, it will be separate in its operation from the present plant, the design enabling it to operate as an independent pulp mill. The present mill and the new one will, however, use the same wood preparation plant and will draw steam and electric power from the same power plant. Aside from these relationships the new unit will possess its own digesters, acid accumulators, blow pits, rifflers, screen room, bleaching plant, storage chests, and pulp drying machine.

LEO S. BURDON
Manager Soundview Pulp Company

By this arrangement great flexibility will be attained. For example: pulp of bond grade may be cooked in Unit No. 1, while in Unit No. 2, pulp of book grade may be produced at the same time.

Design Provides for Eventual 440 Tons Per Day

Unit No. 2 has been designed so that it may later on be expanded at minimum cost to produce an additional 120 tons of pulp per day, making a total of 440 tons of bleached sulphite pulp as the daily productive capacity of the Soundview Pulp Company. A considerable portion of the sum to be expended on the concrete, brick and steel buildings for the new unit will provide space for the possible later expansion to the ultimate capacity of 440 tons per day, so that when the time may come for this step, production in Unit No. 2 need not be interrupted, and but a short time required to construct Unit No. 3.

The next step, or Unit No. 2, will include the installation of three digesters, each 18 feet in diameter and 56 feet in height. The six digesters installed in the present plant, are each 17 by 56 feet. The existing digester building will be extended eastward toward the railroad, and the balance of the new unit will be located around the new digester building or in the area now vacant between the original mill and the railroad.

Another pulp drying machine will be

installed making a total of three. It will be housed in half of the warehouse building, which is of the same steel, concrete and brick construction as the machine room now in use. Additional warehouse capacity will be provided for by extending the present machine room and warehouse westward toward the dock.

Purchasing To Be Done at Everett

The buying of equipment and supplies for the new unit will be done by the Soundview Pulp Company's own organization at Everett. Draftsmen and engineers are now at work putting on the final touches to the plans under the supervision of Mr. Hardy S. Ferguson, pulp and paper mill engineer of New York City. Mr. Ferguson, who designed and supervised the construction of the Soundview mill in 1930, was in Everett during May, going over the plans for Unit No. 2.

As in the present operating mill the design and equipment for the second Soundview unit will provide for the production of the highest grades of bleached sulphite pulp.

Private Financing

Funds for the second unit will be obtained from present stockholders, the directors feeling that it is to the interest of the company's stockholders to avoid financial underwriting charges. All of the funds subscribed will go into the construction of the new pulp mill unit.

It is proposed to the stockholders that the cost of the new addition be financed by the issuance of 20,925 shares of new capital stock, that is, one share of new stock for each four shares now outstanding. If the increase of capital stock is approved by stockholders at the meeting in San Francisco, June 15th, this new stock will be offered to present stockholders, in the proportion of one share to each four shares of present ownership, at a price of $50 per share. The sale of this stock will yield approximately $1,000,000. A group of major stockholders, including some of the Soundview directors, have indicated their willingness to purchase at $50 per share, any unsubscribed stock up to an amount of $250,000, which should insure the success of the stock offering.

It is tentatively planned to obtain the balance of the needed capital by the sale of $1,000,000 par value of notes, divided into two series:

(a) $500,000 of notes; bearing interest at 4 per cent; redeemable at par, and maturing $100,000 a year from 1 to 5 years; and

(b) $500,000 of notes; bearing interest at 5 per cent; redeemable at a premium of ½ of 1 per cent for each unexpired year of life, but not more than 102 per cent of their par value, and maturing in 6 years.

Upon the completion of Unit No. 2 the Soundview Pulp Company will become, with its nine digesters, one of the largest producers of quality sulphite pulp in the world.

Soundview Has Outstanding Record

The management of the Soundview Pulp Company has made exceptional progress since assuming control of the property on March 1st, 1934.

Starting without a cent of operating capital, Soundview borrowed from its stockholders and from banks barely enough money to meet payrolls and to purchase raw materials. Within ten months a dividend was paid to stockholders.

G. J. ARMBRUSTER
General Superintendent
Soundview Pulp Company

In two years time Soundview under the able management of its executives, Mr. Harry H. Fair, president, Mr. U. M. Dickey, executive vice-president, and Mr. Leo Burdon, manager, loyally supported by an intelligent and efficient operating organization, headed by the experienced Mr. G. J. Armbruster as general superintendent, has repaid from earnings all money borrowed from stockholders and from banks, and has acquired ample working capital from out of income.

By putting into effect efficient operating policies approximately $500,000 was obtained from earnings to carry out a far-sighted policy of improvements which has resulted in establishing the Soundview mill as one of the foremost producers of quality sulphite pulp. The improvements made during the past two years are now in full effect enabling Soundview to pay dividends to stockholders.

During the ten months of 1934 that Soundview operated the mill at Everett, the net operating income available for dividends amounted to $188,000, and for the full year of 1935 net earnings amounted to nearly $257,000.

Income for 1936 will reflect the full benefit to be obtained from the improvements made in the Company's plant although the selling price of sulphite pulp is still low in comparison with other commodities. Good management has produced sulphite pulps which are in demand beyond the capacity of the present pulp mill.

It is the Company's policy to keep the stockholders and the public fully informed of the Company's progress, and toward that end a monthly statement is issued to the financial press.

LEADBETTER COMPANIES DID BETTER IN 1935

The year 1935 was far better for the Oregon Pulp & Paper Company of Salem, Oregon, than was 1934, according to the annual report recently released by president F. W. Leadbetter of Portland. Net income for the year ending December 31, 1935, was $117,081.33 compared with net income of $13,965.29 in 1934.

During the year the company paid out $71,511.42 in bond interest and expense. $174,066.77 was set aside for depreciation. A $20,298.41 federal income tax was paid.

Oregon Pulp & Paper Company showed on its books total assets of $6,094,536.64. Current assets were listed at $1,168,545.92 as against current liabilities of $365,966.45. Notes payable were $74,689.15. First mortgage bonds outstanding were $980,000. Deferred accounts were $166.008.16. Investments were listed at $364,333.34. The plant property was valued by the company at $4,393,279.22. Capital stock was listed at $2,096,700. The total depreciation and depletion reserve was $1,972,743.17. Total surplus was $604,437.87.

According to the statement no provision was made for paying dividends which have accumulated on the preferred stock totalling $261,333.33. The Oregon Pulp & Paper Company's statement also stated that all interest was paid on bond issues, and that the extension of maturity dates by the bondholders has been a great relief to the company.

Net income for the Columbia River Paper Mills of Vancouver, Washington, after all charges, was $80,178.64 for 1935 as compared with $61,200.08 in 1934.

The California-Oregon Paper Mills of Los Angeles also made progress with a net income of $25,957.16 for 1935 as compared with but $5,580.26 in 1934.

President F. W. Leadbetter in the statement said, "Although the showing for 1935 is far better than for the previous year, conditions are still far from satisfactory and the mills continue to operate intermittently. The properties are, however, thoroughly maintained and with necessary betterments made, are in splendid position to take advantage of improved conditions if and when operations approach normalcy."

JAPAN TO BUY MORE PULP FROM PACIFIC COAST

According to Mr. Frank S. Williams, commercial attache to the American embassy in Tokyo, pulp mills in the Pacific Northwest may look forward to increased purchases of pulp by Japan amounting to from 5 to 10 per cent. This increase will come, Mr. Williams said while in Seattle, because Japan is making more paper and more rayon.

He went on to say that Japan imported pulp in 1935 valued at $16,500,000, of which the United States supplied 41 per cent or 5 per cent more than in 1934. The balance came chiefly from Scandinavian countries.

Northwest pulp, Mr. Williams said, can be laid down in Japan in nine days as against a month or more time it requires for the Scandinavian product. Freight costs and interest on the investment during the period of transit are important factors in favor of Northwest pulp.

INLAND EMPIRE BUSY REBUILDING

Everybody is busy at the Inland Empire Paper Company's plant in Millwood, Washington, these days with the mill on a six day week, and General Manager Lyman M. Smith engaged in a rebuilding and revamping program which will permit the mill to produce higher grades of paper.

Mr. Smith has purchased much new equipment as part of his improvement program and plans to add still more as rapidly as time allows.

Two new Bird 3A screens have been installed. No. 1 machine now has three 3A screens, replacing four 2A and one 3A Birds. No. 2 and No. 3 machines now each have two 2A Birds. The machines now have ample screening capacity. Suction presses will shortly be added to all three machines.

The wood room is to be revamped and improved with some new equipment. A Vortex beater has been purchased from the Valley Iron Works and will be installed soon. New dusting equipment is being put in to clean waste paper stock. The bleacher is being raised and a new foundation built under it. Lining is being done by the Stebbins Engineering & Manufacturing Company.

Piping in the machine rooms has been lined with copper tubing and all piping to the machines will eventually be so lined. A chlorination system has been added to still further purify the water supply.

Seven new Smythe flat screens are now being installed, and three new rifflers, each 8 by 60 feet, are under construction. The National Tank & Pipe Company is erecting a Douglas fir acid tank.

Mr. N. L. McGoun is master mechanic. Mr. McGoun has been with the Columbia River Paper Mills and with the Willamette Iron & Steel Works.

JOE L. JANECEK
as he appears on the job as Paper Mill Superintendent for the Inland Empire Paper Company. Mr. Janecek came to Spokane in March from Richwood, West Virginia.

Mr. Joe L. Janecek, who joined Inland Empire in March as paper mill superintendent, is not a stranger to the Pacific Coast. Back in 1910 he came West and went to work in the mill at Camas, where he remained for three years before going to Powell River for a year. Then he went back to Camas for a while before joining Marathon at Rothschild, Wisconsin, where Mr. Janecek remained for nine and one half years, gaining a wide experience in the manufacture of white papers. Then to Peshtigo, Wisconsin, for a year and after that to Ontonagon, Michigan, to start a mill. He stayed there a year and a half.

Following his work at Ontonagon, he went with the Standard Paper Company of Kalamazoo for a year before going to the Cherry River Paper Company at Richwood, West Virginia, where he served nine years as superintendent. Then in March of this year Mr. Janecek headed West again to join Mr. Lyman M. Smith at Inland Empire.

INSTALL NEW MACHINERY

Paper Specialty Corporation, Portland, Geo. W. Houk, manager, recently completed the installation of new, automatic machinery for the manufacture of wax-lined food trays. The new plant is located at 907 N. W. Irving Street. The company is receiving a substantial volume of business, and following the breaking in the new equipment has been making new records in the manufacture and shipment of "Shamrock Brand" food trays.

IDAHO STUDENT WARDED McGILL FELLOWSHIP

Mr. Joseph L. McCarthy, Potlatch Forests Fellow of the School of Forestry of the University of Idaho, has been awarded a fellowship at McGill University, Montreal, for graduate work leading to the Ph. D. degree, according to an announcement by Professor Edwin C. Jahn of Idaho.

After graduating in Chemical Engineering from the University of Wash. ington, Mr. McCarthy was appointed to a Potlatch Forests Fellowship, donated by Potlatch Forests, Inc., of Lewiston, Idaho., for research on the chemical utilization of wood. He will receive his Master's degree this June.

At McGill Mr. McCarthy will work under the direction of Dr. Harold Hibbert, Professor of Cellulose and Industrial Chemistry.

COLUMBIA RIVER WAREHOUSE BURNS

The two-story, three hundred foot long, warehouse of the Columbia River Paper Company at Vancouver, Washington, was destroyed by fire the night of May 30th. Damage was estimated at $100,000. The cause of the fire was not determined.

Firemen prevented the blaze from reaching the rest of the pulp and paper mill. The warehouse will probably be rebuilt immediately.

A SWEDISH VIEW OF THE SULPHITE MARKET

The Swedish Wood Pulp Journal for May 1st made the following comment concerning the sulphite market:

"The sales of sulphite pulp for delivery in 1937 have continued satisfactorily, but in the last two weeks only small quantities of sulphite pulp have been sold for delivery next year. As, however, approximately two thirds of the estimated 1937 output of sulphite pulp have already been sold—which result is rather remarkable in view of the conditions prevailing in the market right up to this last year—the present pause in the sales is quite comprehensible. Now and again it has certainly been reported that sales have already been made also for 1938, but they have mostly been made in combination with contracts for 1937."

PAPER MAKERS CHEMICAL HAS PERFECT ACCIDENT RECORD

In the Hercules Powder Company house organ appears the following:

Congratulations Portland!

"A. C. Duncan and the entire personnel of Portland plant are to be congratulated for completing, on March 28, two years' operations without a lost-time injury. This achievement was recognized by W. J. Lawrence, president, Paper Makers Chemical Corporation, who wrote Mr. Duncan expressing his pleasure in Portland's excellent safety record and sent him an Award of Merit to be posted in the plant. Best wishes for a continuation of this splendid work!"

B. C. NEWS PRINT LOSING OUT IN SOUTH AMERICA

South America is now virtually out of the picture so far as British Columbia newsprint mills are concerned, and the reason is Scandinavian and German competition.

There was a time when British Columbia mills sold substantial volume to some of the South American countries, but the foreign exchange situation has been an effective deterrent in recent months.

Argentine operated under a tariff and exchange arrangement whereby the country endeavors to control imports to the amount of imports in relation to the nation with which it does business. Canada happens to be one country that does not buy a great deal from Argentine, because the two countries produce approximately the same commodities. Argentine therefore limits its purchases from Canada, and newsprint, although not produced in Argentine suffers. What newsprint Argentine does buy comes from Scandinavia and Germany, both of which countries find it convenient to buy Argentine's wheat, meat and other products.

Germany entered the South American market with low priced newsprint comparatively recently and because of the policy of the German government in making allowance for the depreciated marks in foreign exchange with countries buying German goods, sales have increased.

Germany has been selling in Mexico for the same reason, and because of this competition British Columbia mills have been shut out, just as they have been in China, where customs regulations are also lenient and practically no control is exercised over dumping of foreign goods.

SUPERINTENDENTS AND TAPPI HOLD JOINT MEETING AT LONGVIEW

June 5th and 6th

On Friday and Saturday, June 5th and 6th, a joint Spring meeting was held at Longview, Washington, by the Pacific Coast Division of the American Pulp & Paper Mill Superintendents' Association and the Pacific Section of the Technical Association of the Pulp & Paper Industry.

Many arrived at the Hotel Monticello early to enjoy informal discussions with friends from various sections of the Pacific Coast. After registration Friday noon the first business session was opened by Mr. George W. Brown of Spokane, chairman of the Pacific Coast Division of the Superintendents' Association.

Mr. Brown asked that a silent period be observed in memory of the late Mr. James G. Ramsey, whose passing was a great loss to the industry and to his many friends.

Mr. Brown started the program off by calling first upon Mr. Claire V. Smith, electrical engineer of the St. Helens Pulp & Paper Company, whose paper was entitled, "Maintenance of Electrical Equipment in Pulp and Paper Mills."

Following discussion of Mr. Smith's paper, Mr. George Douglas, chief chemist of the Washington Pulp & Paper Corporation, read his paper "Paper Mill Slime." Discussion followed with a number of questions being propounded and the experiences of various operators in dealing with slime problems were told to those at the meeting.

From the University of Idaho at Moscow, Idaho, came Dr. Edwin C. Jahn, professor in the School of Forestry, and Mr. Joseph L. McCarthy, Potlatch Forests Fellow, School of Forestry. Mr. McCarthy presented their joint paper, "Measurement of Gelatinization of Wood and Pulp by Water Retention Under Pressure." Their paper is published in this issue.

Saturday Morning Session

Mr. W. R. Barber, chairman of the Pacific Section of TAPPI, presided at the Saturday morning business session.

Mr. Herbert T. Peterson of the Pulp Division, Weyerhaeuser Timber Company, Longview, presented his work on "Instrumentation in Pulp and Paper Mills." His paper covered the fundamentals of instrument design and use as applied to the industry and represented the results of extended study. The paper in amplified form will be published in an early number of PACIFIC PULP & PAPER INDUSTRY.

"Sulphur Dioxide Absorption Losses" was the subject discussed by Dr. W. L. Beuschlein, Department of Chemical Engineering, University of Washington, Seattle. Dr. Beuschlein's analysis appears in this number. It provoked much discussion on the subject of acid making.

"Treatment of Boiler Water in the Northwest," the joint work of Dr. Beuschlein and of Dr. Kenneth A. Kobe of the Department of Chemical Engineering, University of Washington, was presented by Dr. Kobe. He outlined the problems of boiler feedwater conditioning peculiar to the Pacific Northwest and the remedies. Following the reading of the paper, Mr. William R. Gibson of the Shibley Company offered a number of points from experiences of his own and others. In the August number of this journal Dr. Kobe's and Dr. Beuschlein's paper will be published together with the discussion contributed by Mr. Gibson.

Mr. Henry Ward Beecher of the Charles C. Moore Company, Seattle, presented in outline a detailed paper, "Factors Governing the Selection and Design of Black Liquor Units," which had been prepared by Mr. L. S. Wilcoxon and Mr. F. G. Ely of the Babcock & Wilcox Company. The Charles C. Moore Company represents the Babcock & Wilcox Company.

The Saturday Afternoon Meeting

A moving picture show opened the afternoon session. Mr. Robert T. Petrie, Pacific Coast representative of the Bagley & Sewall Company of Watertown, New York, presented several reels of motion pictures illustrating methods of manufacturing heavy paper mill machinery in the company's large plant. The casting, machining and balancing of dryer cylinders was shown in detail together with the new Bagley & Sewall fourdrinier and shake. The pictures also included views of paper machines in operation. Mr. Petrie amplified the pictures with explanations.

Mr. William R. Willetts of the Titanium Pigment Company's Paper Development Laboratory in Brooklyn, New York, came to Longview to present his paper on, "Titanium Pigments, Their Manufacture, Properties and Use in Paper Making. The paper appears in this issue.

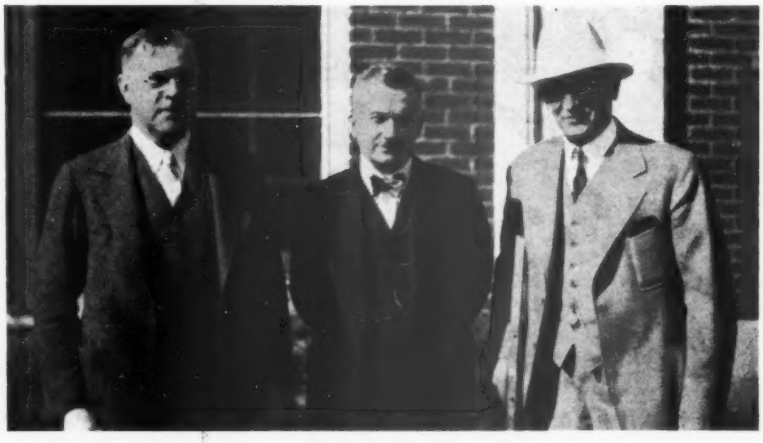
"Copper and the Copper Alloy Metals" was the subject of Mr. James T. Kemp's talk. Mr. Kemp is an engineer with the American Brass Company of Waterbury, Connecticut. He outlined the developments in recent years in the alloying of copper with other metals to produce a wide range of products suitable for many uses previously confined to iron and steel. Mr. Kemp emphasized the variety of qualities that may be obtained in an alloy of copper by slight variations in the quantities of alloying metals employed, and he pointed out how the more recent developments in copper alloys were more satisfactory for certain uses in the pulp and paper industry where pure copper or brass is commonly employed. His example of the extent to which it is now possible to harden copper to obtain strength was an ax made of copper alloy which is used for working in an inflammable atmosphere where sparks would produce an explosion.

Lively Discussion

While there was much discussion following the presentation of each paper, the round table discussion period Saturday afternoon, ably led by Mr. George W. Brown was the high spot of the convention.

Mr. Brown opened right up, presenting questions of general nature that had been prepared in advance. Mr. Brown challenged the operating and technical men present to speak from their own experiences, and through his knack of leading a discussion he soon had the group on the edge of its chair, so to speak.

The round table brought the business sessions to a climax and left everyone feeling that the joint meeting in Longview had been a true success with good papers and excellent discussions. Mr. Bill Barber, chairman of TAPPI, assisted in leading the discussion by selecting the right moments to inject a question or comment adding fuel to the fires of discussion.



Mr. Andreas Christensen of the British Columbia Pulp & Paper Company, Vancouver, B. C., on the left, appears to be about ready to speak. In the center is Mr. Stanley J. Selden, consulting engineer of Tacoma, and at the right is Mr. A. D. (Dad) Wood, superintendent of the Shaffer Pulp Company, Tacoma, Washington.

CARL FAHLSTROM
In Charge of Program
For TAPPI

A display of equipment and supplies attracted much interest on the part of the technical men and superintendents attending the meeting.

The Less Serious Side

Friday evening there was a dinner and dance. Saturday noon the ladies joined the superintendents and technical men at luncheon and enjoyed Mrs. Carl Fahlstrom's singing and Mr. Tom Shield's inimitable stories.

The many ladies who attended the convention and found that Mrs. Heuer and those who assisted her, had arranged a most enjoyable program. Friday afternoon contract was played at the Longview Country Club. In charge of the bridge party were, Mrs. George H. McGregor, Mrs. John McNair, Mrs. George Schmidt and Mrs. T. H. Moran.

Mrs. C. J. McAllister of Portland won first prize at bridge, a piece of decorative pottery. Mrs. Preston Varney of Longview won second prize, a flower dish.

After the bridge party tea was served. Mrs. R. B. Wolf and Mrs. Norman Kelly poured.

Golf was scheduled Saturday morning at the Longview Country Club with Miss Florence Tennant in charge, but rain interrupted the tournament.

In the afternoon the ladies enjoyed a theatre party arranged by Mrs. F. McGrath and Mrs. V. Palmrose.

The original program for the banquet, planned by general chairman, Mr. H. Robert Heuer, had to be abandoned at the last minute as Mr. Robert B. Wolf, manager of the Pulp Division, Weyerhaeuser Timber Company, who was to have been toastmaster, and Mr. John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, who was to have been the guest speaker, were both detained in Portland at the labor agreement conference.

Mr. W. R. Barber, chairman of the Pacific Section of TAPPI, served as toastmaster. He paid tribute to Mr. James G. Ramsey, who passed away last February, speaking of Mr. Ramsey's long service to the industry and of his constructive work through the American Pulp & Paper Mill Superintendents' Association, of which he had at one time been president. Mr. Barber asked the entire convention to observe a minute of silence in Mr. Ramsey's memory.

Mr. Andreas Christensen of British Columbia Pulp and Paper Company, Vancouver, invited everyone present to come to Vancouver this summer and participate in Vancouver's Golden Jubilee.

Mr. A. L. Raught, manager of the Weyerhaeuser Timber Company in Longview, was introduced, and he told of how impressed he was, as a lumberman, with the technology of the pulp industry. He remarked, facetiously that he believed the Weyerhaeuser Pulp Division had achieved perfection in the technical side when they requested the logging division to fall the timber with care so as to avoid breaking a single fibre.

Mr. R. S. Hatch, research director, Pulp Division, Weyerhaeuser Timber Company, was called upon by Mr. Barber. He entertained with interesting stories of his experiences in the industry.

H. ROBERT HEUER
Convention Chairman

Mr. A. H. Hooker, Jr., who is a major in the Chemical Welfare Service, U. S. Army Reserve, and president of the department of Washington of the Reserve Officers' Association, outlined the value of compulsory college military training to America and urged everyone present to vote against initiative 112, which is aimed, Mr. Hooker said, to destroy the American defense forces by eliminating military training in colleges and universities, the primary source of officers in time of war.

Mr. George W. Brown of Spokane, chairman of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents' Association, was introduced by Mr. Barber.

Mr. A. D. (Dad) Wood, superintendent of the Shaffer Pulp Company, Tacoma, was asked to tell some of his interesting experiences during many years in the pulp and paper industry. He responded with his ready humor, bringing laughter and applause. Mr. Wood

W. R. BARBER
Chairman
Pacific Section
TAPPI

GEORGE CROPPER
In Charge of Program
For Superintendents

GEORGE W. BROWN
Chairman
Pacific Coast Division
Superintendents' Assoc.

missed the last meeting because of injuries suffered in an automobile accident. Everyone was happy to see him his old self again.

At the time of the meeting in Longview, a moving picture company was staying at the Monticello, engaged in making a picture involving logging. Mr. Tony Gaudio, head cameraman for Warner Brothers, was invited to tell the convention of their work. Mr. Gaudio, in a talk which held the interested attention of his listeners, spoke of his own experiences as a cameraman for thirty years, of the industry's problems, one of which he remarked was "occasional" rain when on location.

After the banquet there was dancing and everyone left for home feeling the convention had been thoroughly worthwhile in ideas gained from the business sessions, and of course, in again seeing and visiting with old friends.

Where Credit Is Due

Good conventions don't just happen. Back of the program is always much hard work on the part of those who have accepted the responsibility.

For success of the joint meeting, full credit should be given Mr. H. Robert Heuer, operating superintendent, Pulp Division, Weyerhaeuser Timber Company, who served as general chairman for the combinned TAPPI and Superintendents' meeting; to Mr. Carl Fahlstrom, technical superintendent for the Longview Fibre Company, who arranged for papers on the program for the Technical Association; to Mr. George Cropper, superintendent of the Olympic Forest Products Company, who, as vice-chairman of the Superintendents' Association, arranged for their part of the business program.

Other committee members who contributed materially to the success of the meeting were: Transportation, Mr. and Mrs. Clark Lewis; Displays, Mr. Harold Hauff and Mr. V. Palmrose; Registration, Mr. H. A. Des Marais and Mr. Earl G. Thompson; Decorations, Mrs. G. Kirkpatrick and Mrs. P. Varney; Mill Visits, Mr. George H. McGregor, H. Wall, Svarre Hazelquist.

Officers of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents' Association are: Mr. George Brown, chairman; Mr. George Cropper, first vice-chairman; Mr. R. C. Onkels, second vice-chairman; Mr. J. P. V. Fagan, third vice-chairman; and, Mr. H. A. Des Marais, secretary-treasurer.

Officers of the Pacific Coast Section of TAPPI are: Mr. W. R. Barber, chairman; Mr. Carl Fahlstrom, vice-chairman; Mr. Andreas Christensen and Mr. Myron Black, members of the executive committee; and, Mr. Earl G. Thompson, secretary-treasuer.

The following registered:

B. R. Gardner, Tacoma; B. A. Bannan, Seattle; J. R. Brinkley, Seattle; E. A. Heiss, Seattle; Larry Smith, Seattle; W. R. Barber, Camas; Ferd Schmitz, Shelton; C. J. McAllister, Portland; W. R. Gibson, Seattle; H. H. Richmond, Portland; Andreas Christensen, Vancouver, B. C.; Nathan Cohn, San Francisco.

J. P. Bourne, Portland; Mr. & Mrs. A. Ward Tedrow, Portland; Jack Martin, Seattle; Mr. & Mrs. Harry Morgan, Longview; T. H. Beaune, Port Angeles; R. D. Sollars, Portland; E. W. G. Cooper, Camas; B. W. Sawyer, Portland; Glen Wahl, Portland; E. G. Drew, Portland; C. L. Triplett, Corvallis; Leo Friedman, Corvallis; Mr. & Mrs. Stanley J. Selden, Tacoma; Dick Hammond, Longview; Mrs. R. B. Wolf, Longview.

Niles Anderson, Vancouver; W. E. Foren, Vancouver; Mr. & Mrs. L. R. Benjamin, Hobart, Tasmania; L. L. Anderson, Longview; Mr. & Mrs. Ned Menzies, Seattle; Kenneth Kobe, Seattle; Dr. W. L. Beuschlein, Seattle; A. B. Davis, Portland; Mr. & Mrs. H. Gevers, Longview; R. B. Barnard, Portland; W. C. Mumaw, Aberdeen; Dr. James V. Nevin, Aberdeen; A. H. Lundberg, Seattle.

A. D. Merrill, Watertown, N. Y.; D. D. Roberts, Portland; Mr. & Mrs. L. C. Haffner, Portland; Mrs. Carl Fahlstrom, Longview; Mr. & Mrs. T. J. Waltmon, Portland; Mr. & Mrs. Chas. M. Server, Appleton, Wis.; D. L. Shirley, Portland; H. M. Jones, Seattle; A. H. Hooker, Tacoma; Mr. & Mrs. J. E. Hassler, Portland; Mr. & Mrs. John M. Carlson, Everett; Mr. & Mrs. Preston Varney, Longview; Mr. & Mrs. G. M. Kirkpatrick, Longview; Martin Breuer, San Francisco; T. M. Shields, Seattle! Wilfred Brookes, Sidney, Australia.

Paul Freydig, Seattle; Thorold Fink, Sidney, Australia; Paul Richter, Chicago; Mr. & Mrs. Andrew Nelson, Longview; Paul F. Leuth, Everett; George G Guild, Seattle; George S. Douglas, Port Angeles; R. B. Martin, Newark, N. J.; Mr. & Mrs. E. J. McGill, Hoquiam; Thomas J. Bannan, Seattle; F. L. Cooper, Seattle; J. O. Kjome, Seattle; Mr. & Mrs. G. H. McGregor, Longview.

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Mr. & Mrs. C. H. Belvin, Portland; Mr. & Mrs. E. T. Clarke, Seattle; W. D. Jorres, Portland; C. W. Morden, Portland; J. V. B. Cox, Portland; G. H. Linsley, Jr., San Francisco; Mr. & Mrs. Lester T. Graham, Seattle; Mr. & Mrs. H. D. Cavin, Tacoma; Ben Gellenbeck, Tacoma; H. T. Peterson, Longview; Trig Iverson, Ocean Falls; Thurston Iverson, Ocean Falls; A. D. Burk, Wauna, Ore.; Mr. & Mrs. K. A. Stephan, Portland; Mr. & Mrs. M. L. Edwards, Portland; Ed. Baker, Longview; Mr. & Mrs. A. L. Raught, Longview.

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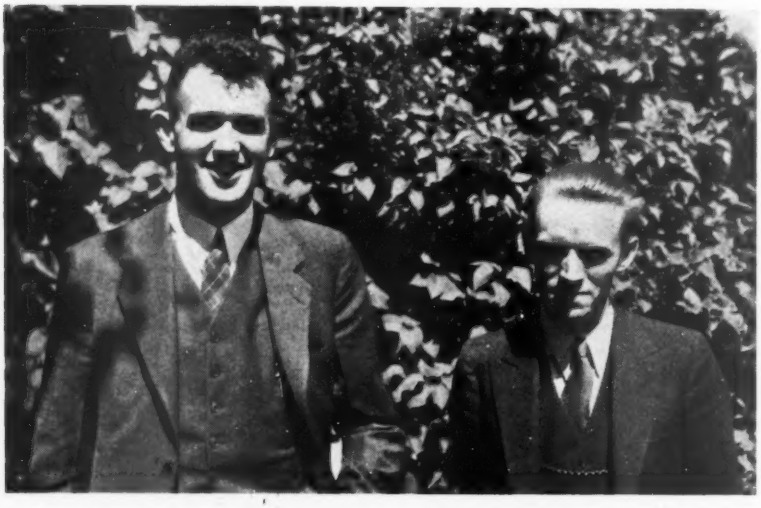
James T. Sheehy, Hoquiam; Homer Best, Longview; D. K. MacBain, Longview; Don Guild, Seattle; Mr. & Mrs. L. H. Wear, Portland.



Mr. Joseph L. McCarthy and Dr. Edwin C. Jahn of the School of Forestry, University of Idaho, Moscow, Idaho. Mr. McCarthy presented their joint paper, "Measurement of Gelatinization of Wood and Pulp by Water Retention Under Pressure."

TUMWATER REORGANIZATION APPROVED

A new plan to reorganize the Tumwater Paper Mills Company of Tumwater, Washington, under section 77-B of the federal bankruptcy act, was approved by the federal court in Tacoma on May 2nd.

Under the new plan, the Columbia River Paper Company, which has a controlling stock interest in the Tumwater company, will con tinue to advance funds for the payment of watchman services, fire insurance and other charges in maintenance of the property. All advances made or to be made will bear 6 per cent interest and will become a lien on all property of the company and will be put ahead of the company's bonds to protect the property. The contract with the Columbia River Paper Company will expire May 1, 1939, unless terminated at an earlier date for any of several reasons.

One of the reasons would be the return by the company to profitable operation, which would enable it to pay the lien created in favor of the Columbia River Paper Company for its advances, to pay current interest upon the bonds and to comply with the current sinking fund provisions of the mortgage.

Bondholders, under the plan, waive all interest due on the bonds from May, 1932, to the termination of the plan, and any default in payment of this interest will not be considered as a default under terms of the bonds or of the mortgage securing the bonds.

The original plan was approved by 96 per cent of the bondholders, and the bonds were deposited with Title & Trust Company, ithis city, as depository. They still hold them, and upon termination of the plan they will be returned to holders of deposit receipts.

The law firm of Griffith, Peck & Coke represented the company.

There is no indication of any plans by the Columbia River Paper Company for reopening the Tumwater mill at an early date.

MEASUREMENT of GELATINIZATION of WOOD and PULP by WATER RETENTION UNDER PRESSURE*

By JOSEPH L. McCARTHY[1] and EDWIN C. JAHN[2]

In connection with research on the gelatinization of pulp and of wood by beating in a rod mill for the preparation of dense strong materials it was desirable to obtain a numerical value for the relative degree of gelatinization.

A survey of the literature indicated that most methods described were difficult to carry out, were of doubtful accuracy, or did not actually measure the degree of hydration or gelatinization only, but rather a combination of changes. The degree of beating and hydration of paper stock is commonly determined by some measure of the drainage properties of fibres by a freeness or slowness tester, or a rate of flow tester. Determination of the tensile and bursting strength of standard sheets made from the pulp also give an indication of the degree of hydration. These tests, however, measure the combined effects of hydration and changes in fiber size, fibrillation and accumulation of fiber debris.

Attempts to measure gelatinization or the colloidal changes it represents include a determination of the amount of alkali absorbed by the cellulose from an alcoholic solution,[2] a measure of the increased degree of alkali solubility,[6] the sedimentation method,[3] a measure of the degree of absorption of calcium carbonate[7] by cellulose, determining the differences in drainage times of stock according to standard procedure and similarity after boiling in water for an hour,[8,9] measurement of the density or volume of contraction of a standard pressed pulp cake,[1] and measurement of the imbibed water retained in pulp pressed under standardized conditions.[5,9]

For measuring a wide range in degrees of gelatinization the latter method seemed promising. Strachan[5] states that pulp pressed at pressure above 10 pounds per square inch loses its capillary water and, by selecting standard conditions, it is possible to obtain a direct measure of the water of hydration. Bell[1] did not find this method satisfactory since at 200 pounds pressure per square inch it took 14 days for equilibrium to be reached, and furthermore he found the differences in water retention between beaten and unbeaten pulps to be too small.

The suitability of Strachan's water retention method for measuring gelatinization is investigated further in this paper.

Gelatinization in the Rod Mill

Commercial bleached sulphate pulp and air dry Idaho white pine (**Pinus monticola**) planer shavings and sawdust disintegrated in a hammer mill and screened to 20-60 mesh size were used. Gelatinization was obtained by beating for varying periods of time in a stainless steel rod mill (12 inches inside diameter and 24 inches inside length) revolving at 50 r.p.m. and containing 50 stainless steel rods, each seven-eighths of an inch in diameter, 23 inches long and weighing 1800 grams. The various beating conditions used are indicated below.

Pulp:
- A—4 per cent consistency in water, total time 8 hours.
- B—4 per cent consistency in 1 per cent NaOH, total time 8 hours.

Sawdust:
- C—Same conditions as A.
- D—Same conditions as B.
- E—5.9 to 4 per cent consistency in 1.43 per cent NaOH for a total time of 48 hours, ratio of rod weight to wood constant at 150.
- F—8 per cent consistency in 0.1 per cent NaOH, 48 hours.
- G—8 per cent consistency in 1.0 per cent NaOH, 48 hours.

Letters appearing in the Tables and Figures refer to the beating conditions listed above. A numeral following the letter indicates the time of beating in hours.

Measurement of the Degree of Gelatinization

Attempts were made to determine the degree of gelatinization by alkali solubility, alkali absorption, rate of settling, microscopic observation, and slowness, all with unsatisfactory results.

Alkali solubility was determined by refluxing 4 grams of material in 100 cubic centimeters of 7.14 per cent sodium hydroxide solution for 3 hours. Alkali absorption was measured according to the method of Briggs[2] using 0.426 N sodium hydroxide in 95 per cent ethyl alcohol. Slowness was determined by measuring the rate of drainage in a vertical glass cylinder slowness tester of the type described by Richter.[4]

In the case of sawdust no increase in solubility in alkali with increased beating was observed. There is a general increase in the ability of sawdust to absorb alkali after increased time of beating but the differences are small and the results somewhat erratic. The slowness test gives fair results for the smaller degrees of gelatinization, but when the beating effects become drastic the rate of drainage becomes exceedingly slow and the errors increase as indicated by the difficulty in getting check results. Results obtained by these methods are compared in Table 2 and Figure 1.

Since none of the above methods gave wholly satisfactory results a study was made of Strachan's water retention under pressure principle.[5] To overcome Bell's[1] criticism of the length of time required to reach an equilibrium between the capillary water and the retention of imbibed water a pressure 50 times greater was employed, namely, 10,000 pounds per square inch.

Procedure. A study of the factors involved finally led to the following standardized procedure. All samples were first brought to the moisture content of 60 (plus or minus 2) per cent by sucking off excess water on a Buchner funnel, squeezing by hand and then pressing between felt pads in a 4 square inch mold at 100 pounds per square inch for five minutes. The wet cake was disentegrated, bottled and its moisture determined. On the basis of the determined moisture content, sufficient moist sample was weighed out to amount to two grams oven dry equivalent. This material was introduced into a mold one square inch in cross-sectional

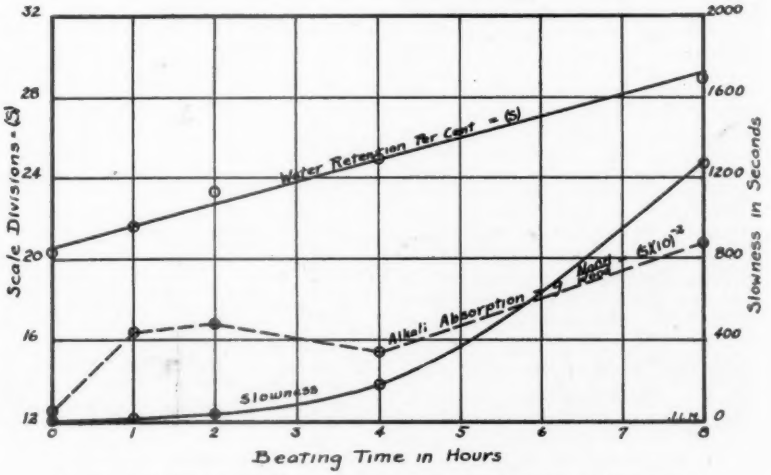


FIGURE 1—DETERMINATION OF GELATINIZATION BY DIFFERENT METHODS

*Presented at the joint meeting of the Pacific Section of TAPPI and the Pacific Coast Division of the American Pulp & Paper Mill Superintendents' Association, Longview, Washington, June 5th and 6th, 1936.

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[2] Member of TAPPI, Professor of Forestry, University of Idaho, Moscow, Idaho.

area with three moist felts above and two below the sample to prevent expressed water running back and wetting the sample when the pressure was released. The mold was placed in a hydraulic press and the sample subjected to a pressure of 10,000 pounds per square inch for 20 minutes. The sample was immediately removed, placed in a weighing bottle and analyzed for moisture retained.

Factors Affecting Test. The time of pressing must be long enough to express most of the capillary water, yet not long enough to remove much imbibed water. The degree of gelatinization appears to have an effect on the rate of movement of water, although particle size has comparatively little effect. Tests carried out on beaten sawdust indicated that with increased time of pressing the water retained approached a constant after about 20 minutes. For example, sawdust beaten 4 hours in water gave the following per cent water retentions with varying time: 5 minutes, 27.4%; 20 minutes, 24.9%; 40 minutes, 24.8%; 60 minutes, 24.0%. With pulp the time for equilibrium is not so well limited to a narrow range as with sawdust and increased gelatinization apparently increases the equilibrium time. However, 20 minutes was selected in order to standardize conditions. Particle size has a definite but small effect on the water retained under the conditions used. The per cent water retained by unbeaten sawdust of varying particle sizes is indicated by the following figures: 20-60 mesh, 20.4%; 60-80 mesh, 21.8%; 100-200 mesh, 22.3%; 100 mesh and smaller, 22.4%; 325 mesh and smaller, 22.9%. Material of 60-100 mesh size beaten for one hour in alkali had 26.0 per cent water retention, illustrating the very much greater effect of even very mild gelatinization over the maximum effect of a wide range in particle size.

A definite range of particle size (60-100 mesh) was isolated by wet screening from sawdust beaten in one per cent sodium hydroxide solution for different periods of time. The per cent water retained by this constant particle size is as follows: Unbeaten, 21.8%; beaten 1 hour, 26.0%; beaten 2 hours, 26.5%; beaten 4 hours, 28.8%. In this case, by definitely eliminating any possible particle size effect, it is shown that increased gelatinization by beating may be measured by per cent water retention.

The per cent of original water in the sample before pressing within the range examined has a small effect on the final per cent water retained under pressure as the following figures show: 68.4% initial, 29.5% retained; 59.2% initial, 29.0% retained: 52.8% initial, 29.0% retained; 42.7% initial, 27.1%.

The effect of the size of the sample in oven dry equivalent weight on the per cent water retention is illustrated in Table 1. As expected, with increasing size of sample, other conditions remaining constant, the per cent water retention is greater.

The studies on the influence of the above variables on the per cent water retention shows the necessity of following a standardized procedure.

Correlation of Water Retention With Linear Contraction

It is well known that the shrinkage of wood is due to loss of imbibed water from within the cell wall tissues and not to loss of free or capillary water. It is reasonable to believe that in a cake of pressed gelatinized wood or pulp from which free water had been expressed that the per cent contraction on drying would be an index of the amount of imbibed water between the micellae and hence of the degree of gelatinization. Bell's[1] method of measuring hydration by comparing the densities or volume contractios of dried pressed cakes involves the same principle.

Correlation of shrinkage with per cent water retention should indicate the value of the latter as a means for measuring gelatinization.

To determine this, discs were pressed under gradually increasing pressures for eight minutes up to 12,000 pounds per square inch which pressure was maintained for 12 minutes. A mold four inches in cross-sectional area and eight grams (dry equivalent) of sample were used. After removal from the mold the discs were allowed to air dry between felts under slight static pressure until they reached constant weight. Since the same dry weight was used for each disc only the linear diameter contraction was measured and the per cent diameter contraction calculated.

When the figures for per cent linear contraction of pressed sawdust discs of varying degrees of gelatinization are plotted against the per cent water retention a straight line is obtained. Arrangement of the values for per cent water retention, gives direct correlation with per cent linear contraction as indicated in Figure 4. This relationship is evidence that the per cent water retention as determined in this study is a direct measure of gelatinization.

Measurement of linear or volume contraction is also a good index of gelatinization but it is too long and slow a method for practical purposes.

Measurement of Progress of Gelatinization During Beating

The progress of gelatinization with increased time of beating can be readily followed by measurement of the per cent water retention under pressure as shown in Figures 2 and 3 and Table 3. The

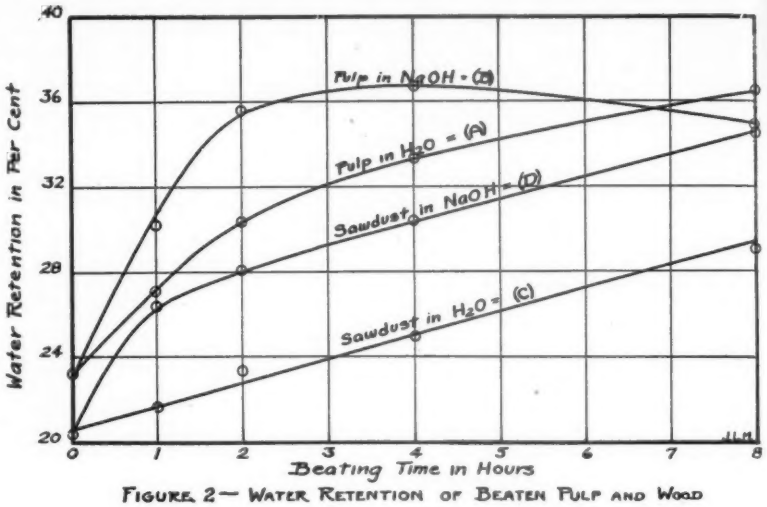

FIGURE 2— WATER RETENTION OF BEATEN PULP AND WOOD

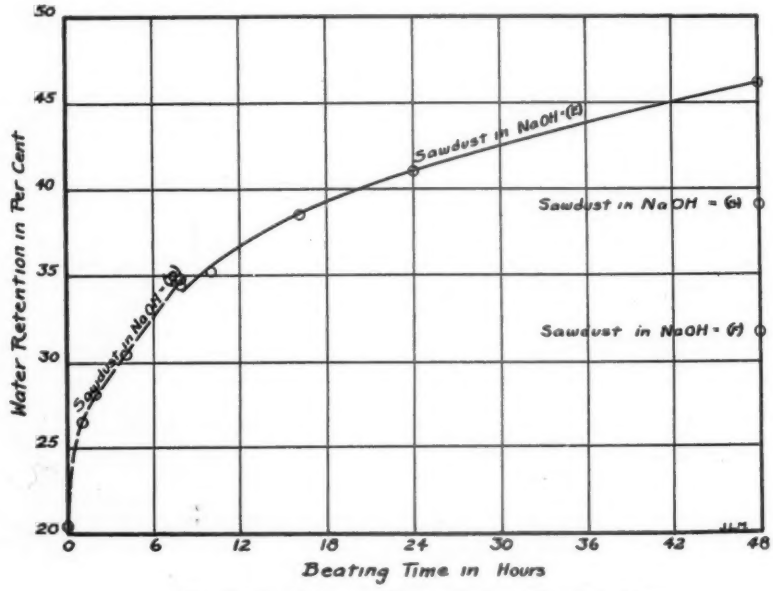

FIGURE 3— WATER RETENTION OF BEATEN WOOD

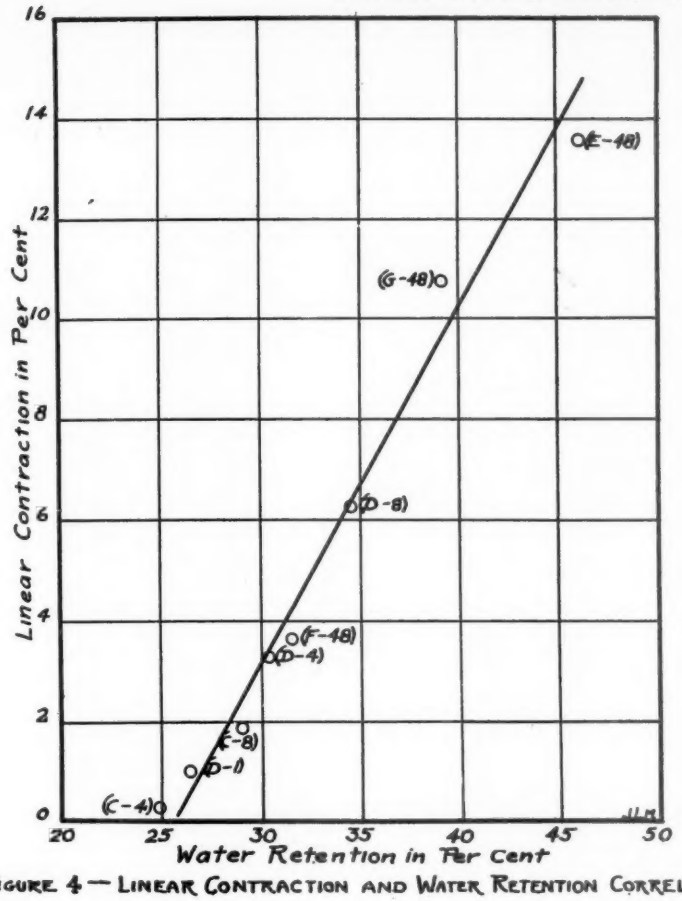

FIGURE 4 — LINEAR CONTRACTION AND WATER RETENTION CORRELATION

points on the curves are easily reproduced giving good check results.

Acceleration of the rate of gelatinization by beating in alkaline solution is readily shown by the curves. The marked effect of small differences in the strength of the alkaline media are well shown by the results at 48 hours beating in Figure 3. The dropping off of the curve for beating pulp in alkaline solution between 4 and 8 hours of drastic beating is difficult to explain until further research is done. Beating sawdust in alkaline solution for 48 hours gave a continuously rising curve as indicated in Figure 3. It is interesting to note that the curves for beating sawdust both have the same slope after the first two hours, the acceleration of gelatinization by the alkali taking place in the early stages of beating.

LITERATURE CITED

[1] Bell, J. H. B., J. Soc. Chem. Ind., 52, no. 18, T119 (May 5, 1933).

[2] Briggs, J. F., Chemiker Zeitung, 34, 455 (1910).

[3] Le Compte, T. R., Paper Trade J., 93, no. 14, 42 (Oct. 1, 1931).

[4] Richter, G. A., Ind. Engr. Chem. 23, 266 1931).

[5] Schorger, A. W., Ind. Engr. Chem., 15, 812 (1923).

[6] Schwalbe, C. G., and Sieber, Rudolf, Die Chemische Betriebskontrolle in der Zellstoff, und Papier-Industrie, page 336, Julius Springer, Berlin, 1931.

[7] Strachan, James, Proc. Tech. Sec. P. M. A. Gr. Br. and Ireland, 14, 447 (1934).

[8] Strachan, James, Proc. Tech. Sec. P. M. A. Gr. Br. and Ireland, 6, part 2 (March, 1926).

[9] Tech. Association of the Pulp and Paper Industry, Standards, T 205m (March 24, 1932).

TABLE 1

EFFECT OF OVEN DRY WEIGHT OF SAMPLE ON WATER RETENTION UNDER PRESSURE

Sample	Oven Dry Sample Wt. in Grams	Water Retention in PerCent
Unbeaten	1.0009	20.5
Sawdust	2.0110	20.3
(C-O)	2.0742	20.4
	2.9342	21.2
Sawdust	1.0696	24.5
Beaten	1.9165	24.7
4 hours	2.0610	25.0
in water	2.2532	26.2
(C-4)	2.7774	27.7
	3.3523	28.0

TABLE 2

DETERMINATION OF GELATINIZATION BY DIFFERENT METHODS

Sawdust Beaten in Water—(C)

Time of Beating (Hours	Water Retention (Per Cent)	Slowness (Seconds)	Linear Contraction (Per Cent)	NaOH Absorption (g.NaOH/g wood	Alkali Solubility (Per Cent)
0	20.4	9.0	-----	0.126	16.7 (Corrected)*
1	21.7	15	-----	0.165	-----
2	23.3	43	-----	0.168	-----
4	24.9	187	0.35	0.154	-----
8	29.0	1270	1.92	0.208	16.2

*Water solubility of C-O is 3.12% under same treatment as in rod mill, except without the beating. Total solubility is 19.8%.

TABLE 3

DEGREE OF GELATINIZATION OF SAMPLES

by

WATER RETENTION UNDER PRESSURE AND BY SLOWNESS

Sample Beating Time (Hours)	Pulp in Water—A		Pulp in 1% NaOH—B		Sawdust in Water—C		Sawdust in 1% NaOH—D	
	Water Retention (Per Cent)	Slowness (Seconds)	Water Retention (Per Cent)	Slowness (Seconds)	Water Retention (Per Cent)	Slowness (Seconds)	Water Retention (Per Cent)	Slowness (Seconds)
0	23.2	44	23.2	44	20.4	9.0	20.4	9.0
1	27.1	93	30.2	580	21.7	15	26.4	23
2	30.3	280	35.6	3300	23.3	43	28.1	74
4	33.3	6000	36.7	11000	24.9	187	30.4	520
8	36.5	18000	34.9	14000	29.0	1270	34.5	3300

PULP IMPORTS UP 27 PER CENT IN FIRST THREE MONTHS

Imports of chemical wood pulp into the United States for the first three months of 1936 were 27 per cent greater than in the corresponding period of 1935, according to import figures released by the U. S. Department of Commerce.

The importance of this increase becomes manifest when it is recalled that pulp imports in 1935 reached a new record.

Imports of chemical pulp during January, February and March of this year totalled 462,641 short tons, valued at $17,617,225, representing a rise in quantity of 98,654 tons over the same period in 1935, in which 363,987 short tons of a declared value of $14,437,407 were imported.

If the import pace of the first three months is maintained it is evident that wood pulp imports will establish a remarkable tonnage total in 1936.

The imports of groundwood were up 24.2 per cent in the first three months with 48,790 short tons valued at $835,371. In the first three months of 1935 groundwood imports totalled 39,259 short tons valued at $645,972. The 1936 tonnage increase was 9,531 tons, and the value increase was $189,399.

Averaging the imports of chemical pulp over the first three months, the monthly average was 154,213 short tons in 1936 as compared with 121,329 short tons per month in 1935. The monthly average for groundwood in 1936 was 16,263 short tons and in 1935, 13,086 short tons.

DR. LATHROP HONORED

At the commencement exercises of De Pauw University, Greencastle, Indiana, June 15th, Dr. E. C. Lathrop, research director of the Crown-Zellerbach Corporation, with headquarters in Camas, was awarded the honorary degree of Doctor of Science.

De Pauw is Dr. Lathrop's Alma Mater. He left the Pacific Coast June 6th to attend the exercises, following which he will make an extended trip visiting the Institute of Paper Chemistry at Appleton Wisconsin, the Forest Products Laboratory at Madison, Wisconsin, and the Canadian Forest Products Laboratory at McGill University in Montreal, P. Q. Dr. Lathrop will return to Camas in July.

U. S. PULP EXPORTS BELOW 1935

The exports of pulp from the United States are running below 1935, according to the Department of Commerce's report for the first two months of 1936.

For January and February of this year pulp exports totalled 20,635 short tons of a value of $1,014,942, while for the same period in 1935, the export tonnage amounted to 28,788 short tons of a value of $1,403,495.

The decrease is 8,153 short tons or 28 per cent.

Exports of pulp for the first two months of this year were comprised of 7,985 short tons of bleached sulphite pulp valued at $522,502; 12,009 short tons of unbleached sulphite pulp valued at $462,263; 280 tons of soda pulp valued at $16,115; and, 361 tons of other pulps valued at $14,062.

COMBINATION KRAFT AND VENEER BOARD

A new product, known as "Tekwood," a combination of cylinder kraft and veneer, is being developed by the St. Croix Lumber Co., Lakeport, N. H. This product has a single ply veneer core and is faced and backed with 16-point cylinder kraft, the grain of the paper running at right angles to the grain of the wood. The combination paper and veneer "plywood" has shown a higher Mullen test than 3-ply birch veneer made in the conventional manner. The veneer core is of varying thicknesses, though 1/20-inch is the most common used so far. The product may be used for containers, for wallboard and many other purposes.

EVERETT OPERATES SUSTAINED YIELD PLAN ON COTTONWOOD

The Everett Pulp & Paper Company of Everett, Washington, about sixteen years ago bought cut-over land near Sedro-Woolley, Washington, and planted cottonwood. Today that cottonwood is being cut for pulpwood, having grown to commercial size.

Other areas of land along the Sauk River between the Skagit River and Darrington have been planted with cottonwood. The company is following the same policy in planting other lands in Skagit and Snohomish counties in order to provide itself with a perpetual supply of cottonwood.

L. P. FORTIER
Superintendent,
Everett Pulp & Paper Co.

Mr. Fortier and his family came to the Pacific Coast in April from Michigan. Mrs. Fortier was in charge of the ladies entertainment for the Superintendents' convention at Grand Rapids, Michigan, June 24th, 25th and 26th.

PRINCE RUPERT PROGRESS

Frank L. Buckley, managing director of Canadian-American Pulp & Paper Company, has returned from New York, where he continued negotiations for financing of a pulp and paper mill at Prince Rupert, and announced at the Vancouver, B. C., head office that plans were going ahead satisfactorily, although there had been several unavoidable delays. He made a trip to Prince Rupert during the second week of June to confer with city and water works officials regarding preliminary work on the development.

VANCOUVER KRAFT

Vancouver Kraft Mills, with plant at Port Mellon on Howe Sound, B. C., are expected to emerge from the clouds of financial complexity some time early this summer as a result of new plans being drafted by representatives of the bondholders' committee. Although details have not been disclosed, it is indicated that the program to be recommended at an early meeting will be of a more permanent nature than any others previously drafted.

WAGE AGREEMENT PROVIDES FOR INCREASE

Following nearly a week of negotiations in Portland, Oregon, twenty-eight pulp and paper mills and representatives of two unions, the International Brotherhood of Pulp, Sulphite and Paper Mill Workers and the International Brotherhood of Paper Makers, signed an agreement providing for wage increases.

The new agreement which is retroactive to May 31st and runs until May 31st, 1937, increases the base wage for men from 47½ cents per hour to 52½ cents per hour, an increase of 5 cents. Women employees were granted an increase of 2 cents per hour.

These increases in the basic hourly rates represents the third increase since 1932, the total hourly wage increase amounting to 12½ cents.

Work calling for higher rates above the minimum will receive moderate advances. Details are now being worked out by a joint committee.

The agreement provides that there shall be no strikes nor lockouts during the period it is in effect, and that the employers will assist the two unions to build up and maintain their membership in each mill.

It is estimated that 11,000 employees will be effected by the new agreement and the total increase in wages will approximate $1,000,000.

TITANIUM PIGMENTS— THEIR MANUFACTURE, PROPERTIES and USE IN PAPER MAKING

By WILLIAM R. WILLETS*

There is no need to discuss the history of Titanium Pigments since this has been covered frequently and adequately in the past. Yet, since these products have experienced such a remarkable growth, it may not be beside the point to note that the element titanium was discovered as recently as 1791, near Cornwall, England, in a black sand which we now know as ilemnite. This is commonly given the formula of $FeOTiO_2$ or $FeTiO_3$, although its composition is very variable.

Titanium Pigments have only been known to the consuming trade for about twenty years, but during that period, largely because of developments in manufacture, with a resultant decrease in price and improvement in quality ,their increasing and diversified use has been almost phenomenal. Strange to say, this use continued to increase rapidly even during the "depression years," when many other developments were virtually at a standstill.

Today, we find such use still on the increase, not only in the paint industry for which the pigments are eminently well fitted and for which they were originally developed, but also in the manufacture of rubber, ink, oilcloth, linoleum, leather, shoe polishes, ceramics, special coatings, rayon and for all kinds of paper, in which we are naturally most interested.

Pigment Manufacture

While various methods have been used for the manufacture of Titanium Pigments, and while these are still undergoing modification and mprovement, the following brief summary will give some idea as to the processes involved.

The basic raw material is usually ilmnite, which is found in India, Africa, Brazil, United States and Norway. The ore, finely ground and concentrated, is mixed in large digestion tanks with commercial sulfuric acid. The mixture is then agitated and gently heated to induce an exothermic reaction between the ore and the acid. The temperature rises and the reaction becomes violent until in a short time the titanium is converted to a soluble sulfate. After the reaction is completed, a comparatively dry mass results which contains both the iron and titanium in soluble sulfate form, with a residue of undecomposed ore and a slight excess of sulfuric acid. The soluble portions are leached out in water, forming a solution containing titanium and iron sulfates. The solution is then treated and clarified by filtration or sedimentation to prevent the contamination of the titanium hydrate which is precipitated by hydrolysis in the next step.

If the titanium-barium composite pigment (**Titanox-B**) is desired, blanc fixe (precipitated barium sulfate) is suspended in a solution of this clarified titanium sulfate in an amount such that the finished pigment will contain 25 per cent of titanium dioxide. This mixture is then heated until most of the titanium is hydrolysed upon the blanc fixe. The resulting pulp is pumped to large settling tanks where it is partially purified by sedimentation and washing. The thickened pulp is then passed through a series of filters where the iron salts and other contaminating materials are completely removed.

If the titanium-calcium pigment (**Titanox-C**) is desired, much the same procedure is followed except that calcium sulfate anhydrite is suspended in the titanium solution in place of blanc fixe. The method of hydrolysing, washing, settling and filtering are much the same except that the proportions in the precipitating tank are so adjusted that the final product contains 30 per cent titanium dioxide instead of 25 per cent, as in the case of the barium composite.

Methods for the precipitation of pure titanium dioxide (without the use of an extender) from the solution have been developed. These yield a finished pigment which has excellent color, brightness and fineness and also has the highest hiding power or opacity of any known white pigment.

Regardless of the methods of precipitating, washing and concentrating, the final steps are similar for all types of pigments. When washing is completed, the pulp is fed to a rotary oil-fired calciner where it is dried and finally brought to a very high heat. This operation changes amorphous titanium hydrate to a cryptocrystaline titanium dioxide having a refractive index of about 2.6. This calcination is the most critical point in the manufacture of titanium pigments.

After calcination the finished pigment is dried and disintegrated. It is then air-floated to a point where over 99.95 per cent will pass through a 325 mesh screen. The average particle of titanium dioxide is about 0.2 microns in diameter, and of the composite pigments 0.5 microns.

Physical and Chemical Characteristics

The outstanding characteristic of the titanium pigments is a hiding power greater than that of any other fillers commonly in use. This hiding power results in the production of great opacity, even when the pigments are used in only small amounts. It is possible to attain degrees of opacity by the use of titanium dioxide, unattainable with any reasonable amount of the older fillers. This opacity producing property has opened up many possibilities in paper making undreamed of heretofore.

In addition to this ability to produce opacity, which results from their high refractive index, fine particle size, etc., the pigments have exceptionally good brightness, approximately 95 per cent, and also have a high neutral white color. These properties permit the manufacture of very white and bright paper. At the same time, these pigments are frequently used in colored papers because clear tints, free from muddiness or objectionable under-tones, can be readily produced.

Another factor in the rapid development of titanium pigments is their chemical inertness and stability. Because of this property, there is absolutely no tendency to react with any of the raw materials used in paper making or finishing operations.

Other characteristics which make titanium pigments exceedingly valuable for paper making are their fineness, uniformity of particle size and freedom from grit (which have already been mentioned). These result in excellent printability.

While various degrees of oil absorption and dispersion are required in the paint industry, these characteristics have little bearing from a paper making viewpoint. However, the titanium pigments being supplied to the paper industry have excellent dispersion in water, and in sizing and coating suspensions, which is an important property.

Routine Laboratory Tests

In order that uniformity may be maintained and the various desirable characteristics developed to the fullest extent, the entire manufacture of titanium pigments is subjected to constant testing. These tests start with the raw materials and are carried out through the various stages of manufacture. In the earlier stages, they are largely chemical in nature but towards the finish of the process, physical tests also play a prominent part.

The usual tests conducted for the grading of titanium pigments are as follows: moisture, loss on ignition, chemical composition, comparison of color (including over-tone and under-tone), oil absorption, coarse particles, alkalinity or acidity, hiding power and tinting strength. Most of these tests follow those outlined in the ASTM Standard Methods. In addition to the tests noted, in the case of pigment for the paper trade, additional tests are made to determine the behavior of the pigments in aqueous vehicles.

It might be well to note also that fundamental work is constantly being conducted for the continued improvement of existing pigments, for the development of new pigments and for the development of new uses for the pigments.

Use in Paper Making

The use of titanium pigments in paper making has been discussed at considerable length within the past few years and a recent article on the subject (Cf. Paper Trade Journal, May 7, 1936, Pages 33-35) gives a fairly complete bibliography of what has been done up to date. However, it may not be amiss at this time to

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review briefly a few of the more important applications.

The use of titanium pigments in book paper not only produces a high degree of opacity, whiteness and brightness but likewise tends to prevent "show-through," as the pigments remain opaque in contact with the oils of the printing ink vehicle. Such use often permits of a decrease in the weight of the paper under consideration without loss of desirable opacity. Bible papers, such as are used for Bibles, dictionaries, encyclopedias, etc., are being greatly improved by the use of titanium pigments. Heretofore, transparency and "show-through" have been great difficulties but these can be largely overcome by proper pigmentation. Generally speaking, in these cases, titanium pigments are used in the beater but recently they have been applied by various methods of surface application at the wet end of the machine.

The pigments are also finding wide use in catalog papers, which in the past have frequently been very deficient in color and opacity. In this case they may be employed in the beater or in any one of the numerous "semi-coating" or surface application processes which have been developed in recent years. Titanium Pigments, so used, effectively mask the color of the groundwood-sulfite stocks usually employed and give a white, bright, opaque sheet with good printability.

Offset papers may be pigmented in the beater. However, these papers are usually surface sized and it is possible to make up suspensions of titanium pigments in this tub size and apply them directly at the sizing press, with improvement in opacity, color and printing surface.

One important field for titanium pigments is their use in bond and similar papers. In such grades, it is generally desired to keep ash at a minimum and strength at a maximum. As has been pointed out the high opacity produced by titanium pigments effects good results with only small amounts. In such cases, the pigment may be added to the beater, or in conjunction with the tub size. Along the same lines, it is easy to see why the use of titanium pigments in envelope papers should be of extreme importance because of the high opacity required in such papers without loss in strength.

A very interesting and comparatively recent development has been the use of titanium pigments for lined boards. In this case, the pigment may be added to the liner beater or it may be used in conjunction with starch at the calender stacks or at some other convenient point. The use in either case results in greatly improved appearance since the off-color filler stock does not show through the liner. Such lined boards are finding almost universal application: boxes for various purposes, food cartons, bottle caps, picnic plates, show cards, etc. A pigmented liner will show practically no discoloration in contact with oils, fats or greases so these boards are exceedingly valuable for packing food stuffs, etc. As has been mentioned with other types of papers, printing will show to optimum advantage on a titanium pigmented surface.

Titanium pigments are being used in increasing amounts for tissues. Such use not only improves opacity, whiteness and brightness but also has a tendency to close up the formation. These points are important where the tissues are to be printed because the opaque white background thus produced enhances the effect of the printing greatly.

Titanium pigments are finding considerable use in coating paper and boards because of their high covering power, brightness, excellent white color and fineness. Although opacity has not been of as great importance in these grades as in other types of paper, the use of lightweight coated sheets in which opacity is a factor is becoming more prevalent.

In many cases, titanium pigments permit the use of a darker and less costly stock. They are frequently used to improve the color and brightness of bleached and semi-bleached kraft pulps, and to lighten the color of unbleached sulfite. Bright shades may be obtained with dyed unbleached sulfite specialties if the stock is pigmented.

Many mills keep supplies of titanium pigments on hand so that they can correct the appearance of off-colored stock and keep their finished product at a definite standard of color, opacity and brightness. During the recent spring floods, many mills overcame discoloration by using titanium pigments to mask the bad color resulting from dirty water.

The foregoing summary is an attempt to indicate briefly some of the more salient features of the manufacture, testing and use of titanium pigments in paper making. It is impossible in a brief review of this kind to go into any great detail regarding any specific phase of the subject, as each individual case usually presents its own specific problem.

WESTMINSTER THREATENED WITH FLOODS

Westminster Paper Company at New Westminster, B. C., had an unusual situation to deal with this month when the Fraser River reached flood stage. The company's mills are located on tidewater close to the mouth of the river, and when the river was swollen to the highest point in forty years, coupled with high tide, water crept dangerously near the mill buildings. To forestall damage, it was found necesary to move all the company's stocks from the lower to the second floor. It was the first time that the company's property had been jeopardized by flood.

ASIATIC WAR SCARE

Executives of Powell River Company and Pacific Mills, Ltd., the two big British Columbia exporters of newsprint, are scanning the "war" news from the Orient with unusual interest these days, as a serious outbreak may interfere with their sales in the North China zone.

Powell River Company has two or three important customers at Tientsin and adjacent cities, and a real war would probably interfere with shipments to some extent.

B. C. KRAFT PAPER PRODUCTION

Kraft production in British Columbia is being retarded by tariffs and entry of low-cost wrapping paper into countries that normally buy in largest volume. There is a 35 per cent tariff on Canadian kraft paper entering the United States, although kraft pulp goes in free. Australia and New Zealand have a ten per cent duty, which has been sufficient to keep exports from British Columbia to a lower level than would otherwise be the case. Both the Australasian countries are endeavoring to protect their own infant kraft industries.

SCANLON RESIGNS FROM POWELL RIVER

Robert H. Scanlon, San Francisco, has announced his resignation as representative there of the Powell River Company, large newsprint manufacturers of Powell River, B. C. Mr. Scanlon's resignation brings to an end a connection with the company which started in Vancouver, B. C., in 1910. He went to Powell River when work was started in the mill and he remained there in active duties as assistant resident manager. Later he traveled extensively for the company making market surveys in the Orient and on the Atlantic Coast of the United States.

Mr. Scanlon likely will establish his own business in San Francisco and will remain in the paper industry, perhaps as a broker.

JAPANESE MARKET DISAPPOINTING

Japanese buying of pulp in British Columbia has been disappointing so far this year, according to Oscar Jorgenson, assistant manager of B. C. Pulp & Paper Company, Vancouver, B. C., which has always done a large business with the Orient.

Although Canada's trade difficulties with Japan came to an end at the turn of the year, sales have not come up to the expected level. It was felt that there would be a brisk rush of business caused by cancellation of orders during the last six months of 1935, when both countries imposed severe tariff restrictions, but this has not materialized so far. Nevertheless, the company will be able to report a considerable upturn for the year. Owing to the trade war last year, B. C. Pulp's business with the Orient was hard hit and this was shown in the financial statements recently published. Judging from reports for the first six months of 1936 there will be a definite recovery, but not to the level that had been anticipated.

President Lawrence Killam of B. C. Pulp is now in New York.

BOGREN PASSES AWAY

Mr. Edward E. C. Bogren, manager of the North Portland plant of the Western Waxed Paper Company for the past twelve years, passed away in Portland on May 11th.

Mr. Bogren was a member of the Portland Rotary Club, the Elks and of the Columbia Country Club. He was born in Sweden in 1890, but had lived in the United States since he was two years of age and in Portland since 1919.

RESEARCH IN PULP INDUSTRY

Continues Along Varied Lines at University of Washington

By Dr. KENNETH A. KOBE,
Department of Chemical Engineering

Research in various fields of interest to the pulp and paper industry continues to progress at the University of Washington. In order that the various research projects progressing at the present time may be seen in regard to previous work carried out, mention will be made of the previous work published on the various projects.

Professor H. K. Benson has a number of projects of particular importance to the pulp industry. The project financed originally by the National Resource Committee and later by a group of mills in the Puget Sound region has been recently completed. It deals with the products formed by the natural decomposition of waste sulfite liquor discharged into water bodies. The reports of the various phases of the work have been published as seven papers.[1]

Work on the utilization of concentrated sulfite waste liquor is being carried on by M. H. Norton who is determining proper specifications for evaporated liquor to be used for roads. Compressive strengths are being run on standard soil test cylinders using evaporated waste liquor as binder and various types of treatment.

Pulping studies on Douglas Fir by ammonia base liquors have been carried on each year since the initial report,[2] which showed that the pulping of young Douglas Fir resulted in a pulp of superior quality over that obtained from older wood. The following year R. B. Colby and M. D. Schmid studied the pulping to find it age alone, rather than structure, was the principal factor in the quality of pulp. A Douglas Fir log, 360 years old, was reduced in a veneering lathe, thus giving sheets of wood of varying ages. These were made into chips and pulped with ammonia base liquor. The results were recently reported at the Seattle meeting of TAPPI. Due to difficulty in reproducing cooking conditions it was necessary to divide the small 25-liter digester into compartments so that comparable pulps could be obtained from each age section. This year J. R. Ash is continuing this project and cooking larger amounts of chips so that complete physical and chemical information will be available concerning these pulps. A report on the pulping of the age rings of Douglas fir will be published in the course of the next year.

A detailed study of the bleaching of Douglas Fir pulps is now being undertaken by F. J. McLeod who had made a preliminary report at the Seattle TAPPI meeting last year. The viscosity of cupramonium solutions made from these pulps is being studied by L. E. Saukko. A comparison of methods of analysis of the ammonia base liquor is being made by L. A. Brown, using a glass electrode to secure neutralization curves. This latter work is under the supervision of Dr. V. Sivertz of the Physical Chemistry Division. Ozone has been proved an excellent bleaching agent by Olle Hedbring, who has used very high density pulps in an experimental bleacher. The chlorination of wood and preparation of lignin derivatives is being carried on by G. E. Scofield under the direction of Dr. S. G. Powell of the Organic Division.

The factors effecting the production of sulfite cooking liquor continues to attract the attention of Professor W. L. Beuschlein. The earlier work of Beuschlein and Conrad[3] on the theory of absorption in the sulfite tower and the new experimental data obtained dealing with the lime-sulfur dioxide-water system in the acid region have been important contributions to the sulfite industry. The work was continued by V. C. Ives and J. E. Newstrom who determined the solubility of sulfur dioxide in calcium bisulfite solutions at higher temperatures; physical constants as electrical conductivities and densities of the solutions were determined. D. J. MacLaurin is now determining the solubility of calcium bisulfite at high temperatures and pressures comparable to digester conditions. G. H. Hemmen made preliminary studies on the relative rate of solution of calcium carbonate under sulfite tower conditions. The effect of temperature and nature of the limestone will be studied later. The vapor pressure and decomposition temperature of the solid phase ($2CaSO_3 . H_2O$) formed in saturated bisulfite solution is being investigated by John Pauly. Previous work with V. C. Ives on the drying of northwest pulps was presented to TAPPI at the Tacoma meeting. A. W. Hawkins, C. C. Haworth and R. T. Deacon are now engaged in fundamental studies an drying.

The work under the direction of Professor K. A. Kobe has been mainly concerned with the utilization of by-products from the pulp industry. Previous work by F. R. Armbruster[4] showed the great importance of the lime end-point when sulfite waste liquor was ammoniated. This lime end - point was studied in greater detail by C. F. Leitz.[5] The knowledge existing concerning the calcium lignosulfonate is so meager that very extensive work must be conducted on the pure chemistry of this important waste constituent before it is possible to utilize it completely. Many of the present important uses, as an adhesive or binder, depend upon the colloidal properties of the waste liquor or the calcium lignosulfonate. The precipitation of this colloid by various inorganic precipitating agents is being carried on by P. R. Moore to extend our knowledge of the pure colloidal chemistry of this material.

Another by-product of importance where spruce pulping is carried out is para-cymene or "spruce turpentine." Unfortunately, the western variety of spruce does not produce p-cymene as does the species pulped in the east and mid-west, where most of the p-cymene is not recovered due to the small demand. The first step in utilizing this pure aromatic hydrocarbon is nitration and reduction to the amino compound, analogous to the production of aniline from benzene. T. F. Doumani has investigated these unit processes and has improved the methods remarkably. P. M. Huemmer is measuring the vapor pressures of a series of these compounds as an aid to separating the various isomers produced. Previous work on the mercuration of p-cymene[6] has been published and this successful method of attack will be continued in the near future.

[1] Pollock and Partansky, "Sulfur Determination in Sulfite Waste Liquor and Organic Compounds," Ind. Eng. Chem. Anal. Ed. 6, 330 (1934).

Benson and Partansky, "The Rate and Extent of Anaerobic Decomposition of Sulfite Waste Liquor by Bacteria of Sea Water Mud," Proc. Nat. Acad. Sci. 20, 642 (1934)

Henry and Partansky, "The Rate and Extent of Anaerobic Decomposition of Sulfite Waste Liquor by Bacteria of Sea Bottom Mud," Part II Bacteriological, Proc. Nat. Acad. Sci. 21,191 (1935).

Partansky and Henry, "Anaerobic Bacteria Capable of Fermenting Sulfite Waste Liquor," Jour. Bact. 30, 559 (1935).

Partansky and Benson, "Analysis of Sulfite Waste Liquor," Paper Trade J. 52, No. 7, 29 (Feb. 13, 1936).

Partansky and Benson, "Anaerobic Fermentation of Sulfite Waste Liquor by Bacteria of Fresh Water Muds," Proc. Nat. Acad. Sci. 22, 153 (March 1936).

Benson and Partansky, "A Laboratory Study of Sulfite Waste Liquor Fermentation" Ind. Eng. Chem. (In press).

[2] Benson, Erwin, Hendrickson and Tershin, "The Pulping of Douglas Fir by Ammonia Base Liquor," Paper Trade J. 99, No. 12, 87 (Sept. 20, 1934).

[3] Beuschlein and Conrad, "Theory of Absorption Applied to the Sulfite Tower," Paper Trade J. (Sept. 20, 1934).

Conrad and Beuschlein, "Some Equilibrium Relations in the System CaO-SO_2-H_2O (acid region) at Pressures Below Atmospheric," J. Am. Chem. Soc. 56, 2554-62 (1934).

Conrad and Beuschlein, "The Solubility of SO_2 in Calcium Bisulfite Solutions," Ind. Eng. Chem. (To appear).

[4] Kobe, Layman and Armbruster, "The Ammoniation of Sulfite Waste Liquor," Ind. Eng. Chem. To appear in May.

[5] Leitz, Sivertz and Kobe, "The Measurement of pH os Sulfite Waste Liquor with the Glass Electrode," Pac. Pulp & Paper Ind. 9, No. 6, 10-3 (June, 1935).

[6] Newstrom & Kobe, "The mercuration of p-cymene," J. Am. Chem. Soc. 57, 1640-2 (1935).

CROWN-WILLAMETTE EMPLOYEES RECEIVE FIRST AID CERTIFICATE

Twenty-three employes of the Crown-Willamette Paper Company, who have been taking Red Cross first aid instructions under W. B. Grant of Oregon City, have completed the course and have received their certificates.

These are M. M. Graham, Dewey Mault, C. A. Enghouse, J. A. Ream, J. S. Anderson, H. Thompson, George P. James, Charles Croner, G. E. Reddick, J. V. Dustin, H. R. Buse, E. T. Walker, Ralph Matile, Jan Haugerod, A. Lewis, Ralph Gribble, W. S. Boutwell, Lake May, R. A. Austin, C. D. Rittenhouse, C. A. Baxter, Charles Barry and J. A. Harris.

BROWN PAPER GOODS COMPANY HAS GROWN RAPIDLY

Los Angeles Converter Expands in Two Years From Two to Sixty Employees

From a staff of three factory employees operating two small bag machines, to 60 workers handling seven machines and their output, in the space of two short years, is a progress record worthy of comment, even in the city of superlatives, Los Angeles. Yet that is the growth accomplished by the Brown Paper Goods Co., manufacturers of glassine bags and paper napkins.

In May, 1934, the company first started turning out bags on two small machines. Charles E. Digby had come out from Chicago with an idea that the Pacific Coast market had room for an efficient manufacturer. With A. C. Brown as president and C. F. Brown as vice-president, the California company was formed. These two men are also officers of the Brown Paper Goods Co. of Chicago, a separate organization. Mr. Digby became secretary and treasurer.

Like the proverbial acorn, the business grew. F. J. Shafer, previously in the oil business, was sales manager, and increasing orders merited expansion of equipment and personnel. More machines were added in 1935 and one of the small bag machines replaced with a larger unit, and two more napkin makers at the first of 1936. In May an extra shift was put on, bringing production to a three-shift basis, 24 hours per day. An outside warehouse was provided for additional storage space for raw materials.

One of the bag machines makes sizes from 3-in. by 3¾-in. to 15-in. by 24-in., prints in two colors, and turns out 5,000 bags per hour. Another, without color press, operates at 20,000 bags per hour in sizes from 2-in. by 3¼-in. to 6¾-in. by 10-in. A third, makes bags and prints in two colors at a speed of 10,000 per hour, from 2-in. by 4-in. to 5¼-in. by 8-in. There is also an automatic two-color printing press for special bag printing, running 10,000 per hour.

The company also now manufactures paper napkins, and has three Hudson-Sharp napkin machines with complete embossing units, each turning out 1,000 napkins per minute.

Wherever possible, they use Pacific Coast products as their raw material. Napkins tissue comes from the Camas plant of the Crown-Willamette Co. The cartons used are made in Los Angeles by the Angelus Paper Box Co., and the knock-down and set-up boxes are a product of the Standard Paper Box Co. here. Bag material is made at Russell, Mass., by the Westfield River Paper Co. Three types are used, "Paperglas," "Sulglas" and glassine. Most of the bag production is in No. 1 glassine.

Consumption of napkin tissue averages 100 tons per month, while glassine runs about 75 tons per year.

The output of the factory is sold mostly in California, but sales extend over a wide area, as far north as Seattle and south into Texas, east to Denver and west to Honolulu.

McMASTER HONORED

A. E. McMaster, vice - president of Powell River Company, was recently elected vice-president of the British Columbia branch of the Canadian Manufacturers Association.

SMITH, DAVIDSON & WRIGHT REPORT IMPROVEMENT

Gradually improving business is being reported by British Columbia companies handling paper wholesale. Smith, Davidson & Wright, one of the largest wholesale paper houses in the province, has just issued an annual report indicating the extent of this improvement. Gross profit from operations last year amounted to $215,731, as compared with $195,884 the previous year. The company"s year ended November 30.

General and administrative expenses amounted to $212,645, including provision for bad debts and depreciation, leaving a balance of $3,986 to be carried to the balance sheet. In the previous year the comparable deduction was $196,734, leaving an operating deficit of $849.

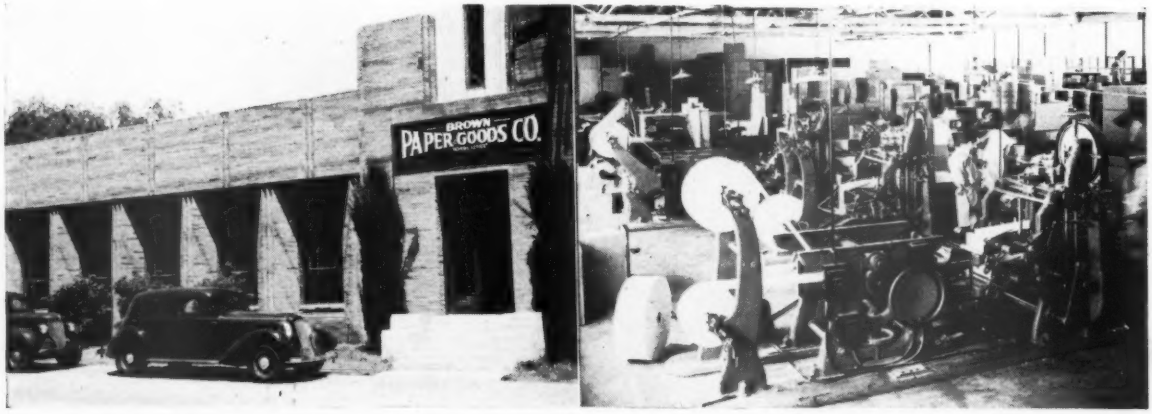
Income from investments totaled $11,948, which is virtually the same as last year. This brought the amount available for surplus to $15,034, compared with an addition to surplus in the previous year of $10,157, an increase of nearly $5,000. Profits surplus stood at $55,310, as compared with $40,777 the year before

During the past year the company increased its investment in Westminster Paper Company from 16,430 shares to 17,168 shares. These are carried on the books at a cost of $168,497. They are on a 4 per cent dividend basis. The company's holdings in Stanley Paper Company and in Pioneer Envelopes, Ltd., were unchanged, consisting of 166 and 147 shares respectively. Total investments are $187,722.

The company's statement shows current assets at $473,283 and current liabilitites at $273,114, indicating working capital of $200,169, or an increase from $190,976 the previous year. Inventories were higher, at $333,464 as compared with $282,584. Cash was up from $17,146 to $23,670. Not included among current items are a $45,000 bank loan, $40,633 mortgages on real estate and buildings, and $24,790 reserve for depreciation.

Dividends on the 7 per cent first preferred cumulative shares of $100 par outstanding to amount to amount to $229,530, have been arrears since October 1, 1931.

Smith, Davidson & Wright's market extends as far east as Winnipeg, Man.



Above at left, Mr. Charles E. Digby, manager and secretary-treasurer of the Brown Paper Goods Company of Los Angeles. At the right is Mr. F. J. Shafer, sales manager of the company. Below at the right the napkin machines appear in the foreground and the glassine bag machines in the left background.

PAPER MILL SLIME

A Disease – Diagnosis – Elimination of Infection Sources – Curative Treatment Under Laboratory Control

By GEORGE S. DOUGLAS*

Slime in a paper mill may, at times, grow so abundantly that it causes considerable loss in production. Not only may this loss in paper occur, but additional harmful effects always accompany slime. Slime spots may appear in the sheet, leading to an unsatisfactory product and resulting in complaints. There is a general tendency for a lower brilliance. In addition, there is an increase in costs due to the necessity for more extensive clean-ups.

Slime may differ in appearance and properties at various points in any one mill. Different varieties of slime cause different kinds of trouble. Some types break off into small particles and cause dirty paper; other varieties grow abundantly on the paper machine, plugging up the suction boxes and the couch roll, or growing in the head box or screens where at times it sloughs off, causing large slime spots. These either break down the sheet or go through making very undesirable paper. White water and stock lines may become restricted, especially at low flows. Decker wires and Oliver wires may become plugged, resulting in poor operation and increased sewer loss. Slime has an effect on brilliance, especially noticeable in the presence of iron. Altogether, the presence of slime may become a very important undesirable factor in the operation of a paper mill.

Types of Slime

Before describing some varieties of slime, it must be explained that all statements made are not general. Only observations that we have made directly are given, and these may or may not apply in other cases. Slime is like a disease; in fact it is a paper mill disease, and the organism that causes it, or the source or manifestation, will not be the same in all mills.

There are many types of slime, biologically and physically. Algae, protozoa, fungi and bacteria may be present, in varying percentages. Each may be the predominating organism that influences the properties of the slime. The following types have been examined.

In one system, the predominating organisms were algae with some protozoa and bacteria present. The slime growth was abundant, and very tough and leathery. The color was dark gray with some green, and it had a peculiar odor of grass. This type grew at a very low temperature, from 40 to 65 degrees F., in the presence of unbleached sulfite at pH of 6.5 to 7.0. It was very tenacious and difficult to remove.

Various types of slime due to fungi have been noted. One that we have examined grew very extensively on head boxes and other surfaces in the presence of groundwood stock. It formed an unusually tough covering, at times over ½ inch thick. Although the predominating organisms here were fungi, bacteria were present to a considerable extent. Some of these were also slime formers. This type was peculiar for its toughness, being able to hold together in sheets several feet square. It was dark brownish-gray in color, and was found in hemlock and spruce groundwood with the pH ranging from 4.0 to 5.0 and the temperature around 80 degrees F.

Another type of slime has also been found in groundwood stock, due principally to fungi. This growth was very different from any other examined, as it formed lumps about the size and shape of wheat kernels. It was very dark in color and grew at a pH ranging from 4.5 to 5.5, and at a temperature close to 100 degrees F.

Several different fungi have been isolated from a contaminated system, but all have had the same general characteristics and are probably related. Undoubtedly fungi can be the predominating organism in some paper mill slimes.

Perhaps the fastest growing and most troublesome slimes are due to bacteria. A large number of bacteria have been found in a paper mill with several of these being true slime formers. The resulting slime is generally of a different nature than that formed by fungi, being more jelly-like and easily broken up. It is this type that may cause considerable trouble due to slime slugs in the stock, resulting in loss of production and lower quality paper. Two different forms of this type are described.

One of these slimes that is due principally to bacteria, has been observed growing in groundwood stock. This is a very jellylike substance, very rapid growing, of a light gray color and is almost transparent. This is well described by saying that it looks like tapioca. It is easily broken up and therefore a probable source of dirt spots. The presence of this slime may also have an effect on brilliance. It has been observed growing in a pH ranging from 5.0 to 6.0 and at a temperature of 80 degrees F.

Another slime that grows very abundantly in the presence of groundwood has been observed on the paper machines. This is also due to bacteria as the predominating organism, with several different ones present, together with some fungi. Most of the isolated species of bacteria have not been identified, but in general they are gram negative rods, encapsulated, motile, with spores, and are slime formers.

This paper machine slime is tougher than that found in the groundwood mill, although jelly-like in nature. This toughness is probably due to the presence of the fungi. It is gray in color, and has been found between a pH of 4.5 and 6, and at a temperature ranging from 60 to 75 degrees F.

Crenothrix is very often found in a paper mill. This may become very serious under certain conditions, especially in the presence of iron.

As an example of the peculiar sources of slime, one type has been observed very similar in appearance to the tapioca slime, which upon examination was found due to a bacteria growing on the slime surface of salmon. During the period the salmon are running in the river, a large number die, and the water becomes contaminated with various bacteria, among them the slime formers. These were carried into the mill by the water, and caused considerable trouble due to the slime that resulted.

Source of Paper Mill Slime

After determining what is the cause of slime, the next step is to determine the source of the organisms. These may come from three major sources; namely, the water, the wood, or the mill system itself. The slime may originally come from either the wood or the water, but once the system is contaminated, this may be an important source of continual infection.

Water is always a carrier of bacteria, and if trouble is experienced from slime this source should be examined first. An examination of the Elwha River water has shown bacteria to be present in amounts ranging from 70 to 1200 per cubic centimeter, besides many forms of algae and lower animal life. This water has to be given chloramine treatment in conjunction with filtering, or it would be a continual source of slime-growing organisms.

Wood is also a probable source of infection. Organisms may find lodging in the wood in the locality where it is grown, or in transit to the mill. Infection may take place on storage in the log pond, or even from the showers used in washing the wood after the cut-up mill. These points should be observed carefully in order to minimize danger of contamination from this source. The

*Chief chemist, Washington Pulp & Paper Corporation, Port Angeles, Wash. Presented at the joint meeting of TAPPI and Superintendents, Longview, Washington, June 5th and 6th, 1936.

necessary steps to take for controlling this source of infection will probably be obvious for each mill.

Once the mill system itself is contaminated, it probably becomes the major source of continual infection. Every pipe line, stock trough, and tank constantly sows slime organisms into the stock. Every surface is a breeding ground. An infected system may have very strong detrimental influence on slime conditions.

Conditions Affecting Growth

The physical conditions of the system affect the nature and the growth of slime. The kind of stock, the temperature, the pH, the re-use of white water, the volume of fresh water, all play a part. It is not easy to distinguish the effect of each, but some general tendencies have been noted.

It has been observed that as the temperature of the stock rises from 60 to 75 degrees F., slime growth becomes more abundant, especially that slime due to bacteria. It has also been noted that in systems where the temperature has been around 100 degrees F. slime growth has not been very serious, although there were bacteria present in the stock. The most abundant growth has been noted near 80 degrees F., but slime has been observed growing in temperatures ranging from 40 to 100 degrees F.

pH apparently has an influence on the type of slime. This influence may differ with different organisms, with each one having an optimum. We have found that some slime bacteria grow better at a pH from 5.0 to 7.0, and are inhibited under 5.0. Molds that have been removed from slime have shown an ability to grow well in a pH range from 3.0 to 7.0. It is generally understood that molds will grow at a lower pH than bacteria.

The re-use of white water nearly always aggravates slime troubles. A closed system is usually warmer, and infection builds up. The use of clean, sterile make-up water, of course, has the opposite effect. When a mill is troubled with slime, the re-use of white water should be carefully controlled.

Laboratory Control Methods

Just as a doctor follows the conditions of his patient, the laboratory should observe slime conditions and follow the results of treatment. By the use of this control, the effects of various treatments can be noted daily, and a complete log of mill conditions can be made. This leads to a better understanding and analysis of the control work consists of determining the infection, the temperature, and pH at various points in the system. In order to determine the infection in the mill, a fundamental knowledge of bacteriology is necessary. The technique may be developed by careful and thoughful work.

Stations, or points in the system where samples are to be taken for observation of conditions, should be selected with care. Each station should tell the story of slime conditions in that system, and should be free from influences that might cause variable conditions and thus false impressions. Once the stations are selected, a routine of sampling and testing should be established.

There are two different methods for determining the amount of infection in a system. One is the streak method; the other, the count method. For general control work, the streak method is preferred as it is faster and gives a fairly accurate measure of slime. For accurate work the count method should be used.

The streak method is done by streaking with a sterile loop that has been dipped into the sample of stock or white water to be treated, on a suitable media in a petri dish. The bacteria are brushed off into the media, and the amount of growth indicates the contamination. The results are satisfactory for control work.

There are several points that should be noted in doing this work. The medium should be suitable for the slime organisms. We have found that Sabourauds agar, or a mixture of Sabourauds agar and nutrient agar works very well for most organisms found in slime. The temperature at which the plates are incubated is of importance, 37 degrees C. being satisfactory for most organisms although we have found some that grow better at 20 degrees C. Observations are made at 48 hours for bacteria, but a longer period of time is usually necessary to observe mold growths. Molds usually show up by the end of 4 days.

The consistency of the sample has an influence on the number of bacteria that will be plated. A 4% stock will make a much heavier plate than white water at 0.5% consistency. This point must be noted in making comparisons. In order to make a written record of the contamination as shown by the plates, numbers can be assigned for different degrees of growth. With practice, these can be judged very closely.

When a more accurate value is wanted on the infection in a system, or if a study of water is desired, a plate count may be made. This method gives the actual number of bacteria per cubic centimeter. This value ranges from 0 for sterile water to over a million bacteria per cubic centimeter for highly infected stock.

Laboratory analysis of mill conditions leads to more intelligent control. Any slime control treatment can be followed day by day, and results noted continuously.

Mill Control Methods

Thus it is evident that when a mill is troubled with slime, many points have to be carefully observed. The first thing to do is to determine the source, and to control the infection coming into the mill as closely as possible. The use of filtered water that has been treated with chlorine or chloramine should eliminate this source. The method by which this is done must be determined by the individual mill. With the infection on wood and water controlled, the problem narrows down to the control of slime due to contamination from the mill system. This may be a very difficult task.

When the system is a source of infection, the surface exposed to the stock becomes very important. The contamination is probably proportional to the surface exposed. Therefore, surface should be a minimum; that is, the flow of stock through the system should be as fast as possible. Corners and dead ends should be eliminated. All replacements in stock systems should be made with the additional purpose of eliminating slime.

Not only is the amount of surface important, but also the type of surface. The rougher the surface, the greater the chance for infection. Concrete and wood are very bad in this respect. A tile, copper, or smooth resistant paint surface lowers the danger of this source of infection.

Storage of stock is another point of importance. A stock with a low bacteria count going into a contaminated stock chest may come out in several hours with a very high count, sufficient to cause slime growth on the paper machines. A stock chest may be a very good incubator for bacteria. From the standpoint of slime, storage should be held at a minimum.

Another important point in mill control of slime is the periodic cleanup. When a machine is clean at the start of a run, it is easier to keep slime from growing. When spatter and slime are left on a machine, the stock is contaminated immediately upon starting, and slime troubles are increased. Thorough cleanups help considerably in slime control.

All of the above methods for controlling slime in the paper mill should be considered, but these alone may not clean up the mill if badly contaminated. Some germicide is needed. At the present time, chlorine or chloramine is used most extensively.

It has been demonstrated that chloramine will control slime growth under definite conditions. The formation and application of chloramine must be carefully considered before efficient and satisfactory results are assured. This can only be accomplished by a thorough knowledge of the subject. The discussion of chloramine, its chemistry and application, merits more time than we can give here.

In conclusion we might say that paper mill slime is a disease. The first step in control is to determine its cause. We find that it may be due to either algae, fungi, bacteria or a mixture of these. The source of the organisms should be determined. If this proves to be either water or wood, steps should be taken to stop this seeding of the system.

Two methods of treatment are prescribed: The first, physical, which includes cleanups, decreasing contaminated surfaces, and other similar improvements; the second, the application of some germicide which may be compared to a medicine. In order to follow the progress, periodic tests should be made on the system. The laboratory should follow the control of slime as a doctor observes his patient. With patient and intelligent effort, the danger of slime can be minimized if not eradicated.

RESEARCH STAFFS CONSOLIDATED

With the completion of the new research and experimental laboratories at the mill of the Rainier Pulp & Paper Company in Shelton, Washington, research work which has been divided between Shelton and the Olympic Forest Products Company's mill at Port Angeles, will be centered in Shelton.

As a result a number of men engaged in research have moved to Shelton, among them being: Dr. E. N. Parrett, Dr. J. H. Holloway, E. H. Woodruff, Fred Doherty, Dufferin Simpson and Clarence Anderson.

Mr. John Kiely, who has been located at Shelton for sometime as a resident engineer with the Rainier Pulp & Paper Company, was transferred in April to the Central Engineering Office in Port Angeles.

FIBREBOARD PRODUCTS MOVES OFFICE

The Portland division of Fibreboard Products, Inc., has moved its office from the Henry Building to 50 N. E. Oregon. The office is now housed in the same building which contains the office and plant of Fibreboard Products, Inc., F. C. Stettler Division.

ELECTRICAL MAINTENANCE IN THE PAPER MILL

By C. V. SMITH*

ELECTRICAL equipment has become such a vital part of every paper mill that it would be impossible to manufacture paper without the unceasing and dependable functioning of electrical machinery.

The increased demand and usage of electrical power has brought a large number of maintenance problems. Machinery must be kept in the best possible repair to operate at a maximum efficiency. The avoidance of breakdowns and problems of maintenance require a great deal of attention.

The greatest factor in the elimination of electrical breakdowns is better understanding and co-operation with the men engaged in the actual manufacturing of the product. Any plant electrician worthy of the name knows as well as anyone that our business is primarily that of making paper, and he is not only willing, but will do all he can to help. Yet machine room men are still to be found who regard the mere presence of an electrician, if the machine is still running, as a potential loss in production.

Time Is Essence

The maintenance problem is not chiefly one of proper testing and periodic cleaning and oiling. Any plant electrician would be more than glad to maintain machinery as simply as this. The most difficult job is to have the production machinery stopped long enough to afford the electrician the opportunity to give the equipment the attention it deserves. At this point, proper understanding and co-operation is most valuable.

In the past when a department superintendent was asked if it were possible to get along for a period of time without a certain motor, he would usually refuse without giving the situation any consideration, then when the plant shut down Sunday morning, it would be necessary to bring in every available member of the crew, hire a few extras and work frantically until Monday morning trying to fix it up to run another week. Now that we have all gotten together and recognized each other's problems, we have come to realize that after all there are comparatively few motors in a mill that cannot be shut down for short intervals without materially affecting production, with the result that today no more man-hours are worked on Sunday (as a rule) than any other day, and the plant is in a better state of repair than ever.

Out-of-Date Practices

A few years ago, it was a common sight to see sticks behind compensator handles and weights hung on the magnetic switch relays in practically any mill visited. Protection for the motor in the form of fused switches and compensators, with temperature relays, was almost as costly as the motor itself; however, it was rendered useless when the motor kicked out, which after all was what it was supposed to do. The operators, instead of calling for an electrician, would plug the compensator to enable the motor to run awhile longer, maintaining production for a short time, but causing a costly delay later. Motors do not quit just to be temperamental. When they kick out, or blow fuses, there is always a reason. The electrician knows, or can find the reason, but the department head usually tries to run the motor a little longer.

Ask any plant electrician how many times he has seen a motor hot enough to be used as a cook stove, and knew the trouble was in a faulty coupling or impeller, and asked the department head for permission to shut it down for an hour, and was told it was impossible, that he could not run without it, although an hour or so later when the motor burned out, they kept making paper just the same. But instead of an hour, it entailed a shut-down of several hours while a substitute motor was found, placed on the base, and correctly lined to the machine.

Most Frequent Causes of Motor Failure

The most common cause of motor failure is not caustic liquor, or water, but overload. This does not mean deliberately trying to get more out of a motor than it was built for, but an overload such as caused by faulty couplings, impellers, or reduction gears.

Changes in pipe lines which increase the head on pumps or the addition of arms on agitators and neglect to take into consideration the extra load on the motor are frequent causes of trouble. All alterations should be considered in relation to the rated power of the motor.

In the days of poor co-operation and sticks on top of compensators to have them handy, it was ridiculous to even ask to have a motor shut down. One mill having only two hundred and fifteen motors lost twenty-one in a year. Last year under a system of ideal co-operation this mill lost only seven out of a total of five hundred and forty motors in constant use, and while I have no figures on production, I know there were benefits in that direction as well as a saving of electrical equipment.

Good Practices

In maintaining a mill correctly and efficiently, emphasis should be placed on several good practices.

Electricians should be called on, or consulted when motors misbehave.

Good supplies and materials should be kept on hand at all times.

Operators should be instructed in the proper methods for using and handling electrically powered machines.

The most important problem and the one that is so seldom appreciated may be found in that of securing co-operation with the operators. Though the electricians and materials are the best, it will still be difficult to achieve a noticeable degree of success without the aid of the department heads and the operators. Their help need not be manual, but just a consideration of the difficulties encountered by the delays in needed repairs or maintenance. Once this spirit of helpfulness is instilled, the electrical equipment will be operated and repaired with a minimum of lost time, effort and expense.

*Electrical engineer, St. Helens Pulp & Paper Co., St. Helens, Oregon. Presented at the joint meeting of TAPPI and the Superintendents' Association, Longview, Washington, June 5th and 6th, 1936.

INCREASE IN JAPANESE PULP IMPORTS

Imports of wood pulp into Japan during January totaled 31,208 short tons, of which amount 17,339 tons represented pulp imported for paper making and 13,869 tons, pulp imported for the manufacture of rayon. Compared with the corresponding month last year, these figures show a decided increase in arrivals of paper-making pulps and a moderate increase in pulp for the manufacture of rayon. The United States supplied 69 per cent of the January, 1936, imports as against 38 per cent last year. The increase in American participation in this market was accomplished by smaller receipts from Norway, Sweden and Canada. It is expected that February imports will reveal a stronger position in Canadian pulp, owing to the removal on January 1, 1936, of the 50 per cent surtax of the regular duty, applied since July 20, 1935, on certain Canadian products.—U. S. Department of Commerce, Bureau of Foreign & Domestic Commerce.

DUPONT INTERESTS PLAN FLORIDA PAPER MILL

It was reported from Jacksonville, Florida, late in May that the St. Joe Paper Company, a DuPont interest, had filed incorporation papers there and the announcement had been made that a paper mill costing $7,500,000 would be constructed at Port St. Joe, Florida.

The report further stated that Mr. Edward Ball of Jacksonville, president of Almours Securities, Inc., announced the purchase of 145,000 additional acres of land in Gulf, Calhoun, Franklin and Bay counties by Gulf Coast Properties, a subsidiary of Almours. The concern now owns about 500,000 acres in Northwest Florida.

The paper company was organized by Almours Securities, Inc., with Mr. Geo. H. Mead as chairman of the board and Mr. Sidney Ferguson as president. It is planned to produce kraft test liner board.

The RECOVERY of SULPHUR DIOXIDE

By Dr. W. L. BEUSCHLEIN*

The preparation and recovery of sulphur dioxide are processes familiar to the sulphite pulp industry. Large quantities of sulphur are annually converted into cooking liquor, and although procedures have become somewhat standardized, the consumption of sulphur per ton of pulp varies considerably from mill to mill.

With the hope of presenting fundamental information, a study was begun of the physical properties of the chemical system—SO_2-H_2O-CaO. With such information available, the mill man would be able to predict the completeness of recovery of a proposed sysytem, the effect of changing temperatures, how acid strength may alter the losses, the effect of gas and liquid velocities, and the parts played by many other variables. Analyses in a chemical laboratory can determine basic relationships and certain facts can be suggested to the mill based upon these, but operating information can only be obtained in the mill. In the final anlysis, the value of laboratory work is to be measured by its acceptance and use in the industry.

Industrial absorption systems are designed for certain capacities (the term "capacity" being synonymous with "rate") and for definite but limiting operation conditions. The purpose of this paper is to show how rates and the limiting conditions are dependent upon certain equilibria. In order to do this, equilibrium conditions for the system CaO-H_2O-SO_2 have been experimentally determined. In Fig. 1 curves for the temperature of 25 deg. C. show such information, and similar data are now available for temperatures throughout the range of 5 to 50 degrees.

In Fig. 1 the line O D E represents the solubility of total sulphur dioxide in aqueous solutions saturated with lime; the line O A B that for the solubility of sulphur dioxide in water. The straight lines of positive slopes are constant combined lines. The area under the curve O D E represents conditions of super saturation. On the diagram, when reading the line O A B, the abscissa is read in units equivalent to free sulphurous acid (x); for points in the area B E D O A , in units of total sulphur dioxide (t). For example: the equilibrium pressure of a solution at 25 deg. C. is desired; the solution is known to contain 1.0 gram combined, and 3.0 gram total sulphur dioxide per 100 grams of water. In the figure, the point "C" determined by the analysis, locates the constant pressure line of 95 mm. The free sulphurous acid is calculated from the equation

$$x = t-2z$$

It is obvious that, with any two of the variables (x, t, z) known, the third can be determined.

The absorption, which takes place at any given point in a tower by a solution, is considered to be that sulphur dioxide which diffuses through the gas film over the solution. Naturally, this quantity diffuses into the solution entering through the liquid film. Resistance to absorption is entirely in the two films, the individual resistances being separate from and not related to each other. Fortunately, at times the resistance of one film may be found to be negligible when compared with the other, and as in similar electrical circuits, the driving force (voltage drop) across the two resistances can be considered equal to that over the larger of the two resistances. In cases where neither film has a resistance which can be neglected, the two films must be studied separately. Again, as with the electrical circuits, temperature affects resistance; a rise of temperature decreases that for liquid film. However, experimental evidence to date is not conclusive regarding the effect of temperature upon the resistance of gas films.

The mechanism by which gas and liquid velocities affect absorption rates is best described by considering the action of such velocities upon the respective films. In hydraulics, it has been experimentally clearly demonstrated that the effective thickness of a film depends upon the velocity of the main body of the fluid. As the velocity increases, the

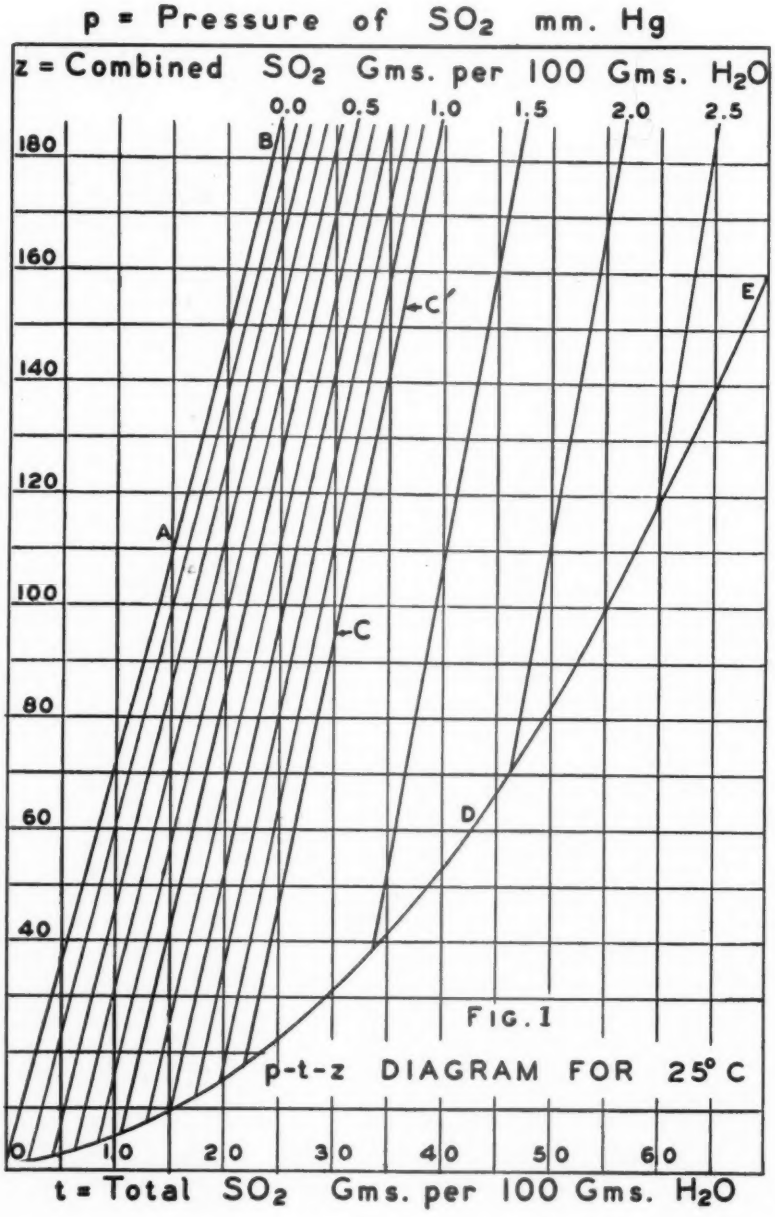


FIG. 1

p-t-z DIAGRAM FOR 25° C

*Department of Chemical Engineering, University of Washington, Seattle. Presented at the joint meeting of TAPPI and the Superintendents' Association, Longview, Washington, June 5th and 6th, 1936.

film thickness decreases, due probably to a sweeping action—or shearing force—created by the main body of fluid. Since resistance is proportional to thickness, an increase in fluid velocity causes a decrease in resistance; however, it is quite obvious that, where a gas film offers but five per cent (5%) of the total resistance, little is to be gained by increasing many times the gas velocity; also, that an appreciable gain will result simply from doubling the liquid velocity. Re-circulation of tower acid apparently would fulfil such conditions; however, the introduction of high strength acid into the top of a tower has the effect of greatly diminishing the absorption driving force, and the expected gain due to increased liquor velocity may result in an actual absorption loss.

The total absorption at any given tower section is proportional to the area of the gas-liquid interface. Where irregular shaped packing, such as limestone, is used the interfacial area may be much less than that of the solid; for the usual size of stone, the area useful for absorption will be a constant times the dry solid area, and the evaluation of this constant will develop as part of the actual absorption coefficient. The depth of tower packed is a measure of absorption area. Where seventy (70) feet of stone can be accommodated, and fifty (50) feet represents the actual operating depth, the absorption area will be but 5/7ths of that area available. Such a loss of area in the strong tower will lower the over-all absorption much more than for a corresponding shortage of stone in the weak tower.

There are no data available which show the relative resistance of gas and liquid films to absorption of sulphur dioxide in a limestone packed tower. Considerable work has been done, however, on the absorption of sulphur dioxide by water in stoneware packed towers. For the present it will be necessary to apply such information to the limestone towers indicates that for conditions of temperature and of fluid velocities similar to those to be found in many of the commercial sulphite towers, the resistance of the gas film is small when compared with that of the liquid film.

For absorption conditions wherein the liquid film resistance controls, the rate of absorption can be expressed thus:

$$\frac{dW}{dT} = \frac{a\,A\,(Xe-X)\,dh}{R_L} \quad \ldots\ldots\ (1)$$

$\frac{dW}{dT}$ = rate of absorption, lbs. per min.

Where

a = gas-liquid interfacial area, sq. ft./sq. ft. of empty tower cross section.

A = cross sectional area of empty tower, sq. ft.

X = concentration of free SO_2 in solution, lbs. SO_2/cu. ft.

h = height of tower, ft.

R_L = over-all diffusional resistance.

e = subscript for equilibrium conditions.

In this equation, the quality Xe-X is the driving force across the film, Xe being the concentration at the gas-liquid interface, and X that of the main solution. Conditions, therefore, favorable for absorption are:

Large interfacial area
Tower length
Gas-liquid interfacial concentration (Xe)
Low film resistance
Concentration of the main body of the absorbing solution

As in an electrical circuit, where the quantity of electricity per unit of time (coulombs per second), transmitted over a fixed resistance is directly proportional to the potential drop, so in absorption, the rate is directly proportional to the driving force, Xe-X.

The value of Xe depends upon temperature, gas concentration and lime content. In Fig. 1, the point "C" corresponds to a solution which, at equilibrium, contains 3-(2)(1) = 1 = Xe grams of free sulphur dioxide per 100 grams of water.

At 15 deg. C., when a gas containing sulphur dioxide of partial pressure 95 mm. (12.5% SO_2) saturates a solution in which there is 1.0 gm. combined SO_2/100 gm. H_2O, the free (Xe) becomes 1.4 gm. The free sulphur dioxide for corresponding conditions, but at 50 deg. C., will be 0.48 gm. The value of low temperature is quite apparent. Suppose that, instead of 12.5% sulphur dioxide gas, 20% (152 mm.) gas from a spray burner is available. The point "C" is moved to C' where Xe=1.6. It may be desirable to compress a gas which contains 12.5% sulphur dioxide to two (2) atmospheres, whereupon the pressure of sulphur dioxide becomes 190 mm. For the original solution at 25 deg. C., Xe becomes 2.0.

These examples serve to indicate the quantitative information, which can be obtained from the equilibrium data for the system SO_2-H_2O-CaO.

The absorption potential is not dependent upon Xe alone, but upon Xe—X. It has long been agreed that absorption losses decrease as the length of the tower acid is lowered, but quite the reverse as the concentration is increased. At the exhaust of the weak tower, where water free of sulphur dioxide is introduced, X=O; hence, the absorption potential equals Xe.

Suppose that re-circulation is proposed and, instead of only water, 0.3% sulphur dioxide solution is pumped into the tower. It is obvious that the exhausting gas must contain sulphur dioxide to such extent that some value of Xe—X will be maintained, and since X will be much greater than zero (0), Xe, the corresponding sulphur dioxide in the exhaust gas will be abnormally high. Re-circulation in the strong acid tower will effect an increase of X throughout the length of the tower, thereby lowering the term Xe—X, and, consequently, will throw more duty upon the weak tower.

The effect of combined sulphur dioxide upon the concentration (Xe) of free sulphur dioxide at the outer boundary of the liquid film is very small. This statement is derived entirely from curves such as are shown in Figure 1, where it is observed that the lines indicating concentrations of constant combined sulphur dioxide are nearly parallel. If they are assumed to be parallel, the slopes m are equal, and the intercepts are 2z which yield the family of straight lines:

$$p = m\,(t-2z)$$

Since $Xe = t-2z$, $p = m\,Xe$ and for a given gas concentration p, the free sulphur dioxide (Xe) is independent of the combined sulphur dioxide content of the solution.

The rate at which lime goes into solution depends upon acid temperature, type of stone, the ratio of gas-liquid interfacial area to liquid stone interfacial area, and to the solubility of lime. However, some studies concerning these variables have been made at the University, but there still remains much to be done. It has been found, at room temperature, that the rate of lime solution is directly proportional to the rate of sulphur dioxide absorption, and independent of gas concentration. This work was carried on by using gas and liquor velocities and concentrations similar to those in mill practice. Future studies will determine the effect of temperature, and the data for typical limestones for this region will be made available.

Temperature of tower acid affects lime solution in two (2) ways: since the viscosity of liquids decreases with temperature rise, diffusional resistance through a film layer to molecules such as Ca Co_2 $Ca(HCO_3)_2$, and Ca SO_3, will decrease with temperature rise; while, for the same temperature affect the solubility of 2 Ca SO_3-H_2O decreases. Analysis of this problem offers many difficulties, not to mention the variety of mill practices which seem to be capable of proving—or disproving—any generalization.

The effect of using warm water during summer months is the production of acid of high combined content. Such a statement, by itself, means that for gas concentrations and velocities equal to those used during winter months, the effect of temperature rise is to increase the rate of solution of limestone. If, however, during the summer, more sulphur is burned (hence, more sulphur dioxide is introduced into the absorption system) the losses are greater, and quite the opposite conclusions can be drawn.

In closing, it is repeated: research laboratories can only supply certain information such as comes from small scale, but rigorously controlled, experiments, whereas, operating data and characteristics must be developed in the mill.

RICHFIELD FEATURES HAWLEY MILL IN MAGAZINE

In the latest issue of "The Firing Line," an ably edited magazine for its dealers, published by the Richfield Oil Company, appears an illustrated story about the Hawley Pulp & Paper Company of Oregon City, Oregon, of which Mr. Carl E. Braun is mill manager.

The story appears under the heading, "Richfield Lubricants Help Make Paper."

THE FLAX PAPER SITUATION

The further use of flax from the Willamette Valley of Oregon for the manufacture of cigarette paper by the Champagne Paper Corporation of New York seems improbable at this time. The State of Oregon has offered the facilities of the state prison flax plant for the processing at "actual cost of labor, material and overhead."

However, the Champagne Paper Corporation desires to study costs further before embarking on a larger program. The quality of flax from Oregon in the test shipments which have been made is said to have been satisfactory. It is probable that before any further progress is made in this outlet for flax fibre, the fate of the state prison plant will be known. It is rather generally expected that it will be abandoned and that private retting and scutching plants will take its place, these plants being in the vicinity of growing areas.

EFFICIENT, FLEXIBLE MATERIAL HANDLING and STORAGE ARE FEATURES OF NEW CAMAS DOCK AND WAREHOUSE

The recently completed warehouse and dock of the Crown Willamette Paper Company at Camas, Washington, includes a number of interesting features in its construction and in the methods evolved for handling outgoing and incoming shipments.

Of heavy mill construction the warehouse and dock is one hundred feet wide and four hundred and twenty feet long, three stories in height, with 115,000 square feet of storage space or 1,500,000 cubic feet of storage volume. Walls, except end fire walls, are of wood, while the roof and floors on the second and third floor are of laminated 2 x 12 Douglas fir dimension. In laminating, care was taken to break joints. Floors are supported by timbers and stresses are carried down to bed rock. The lower floor is of concrete, because during high water in the Columbia River, it may be submerged. The laminated wood floors are covered with composition to ensure a smooth surface for trucking. The floor was designed to hold four hundred pounds per square foot and to handle moving concentrated live loads of the fully loaded lift trucks.

A spur track from the plant electric railway system serves each floor of the warehouse. Stock loaded on flat cars is delivered from all departments or may be carried to all departments by this system. The warehouse floors have the same level as the floors of the flat cars, to permit hand or machine trucking directly from the cars, or of moving materials, such as alum or salt cake on to the cars for delivery in other parts of the plant.

The top floor is used for the storage of toilet and toweling awaiting shipment; also the storage of knockdown cartons held in reserve for use by the various departments of the Camas mill.

The second floor is reserved for the storage of roll paper of various types and also as reserve supply storage for such items as alum, salt cake and the like which require dry storage.

The lower floor is largely employed for shipping activities and has stored upon it only material to be moved out shortly by barge and steamer. During high water in the Columbia River this floor may be under water for a time and then shipping acitvities will be moved to the second floor.

In designing the warehouse part of the structure much thought was given to the most economical methods of handling and storing materials. For example, after extensive studies of the production of sizes by volume, the height between the floors was worked out to allow the tiering of paper rolls and bundles with practically no lost space.

Another feature of the warehouse is that it was built and arranged with a view to facilitating rail or water shipments as needed. The second and top floors are connected with Number 3 warehouse on the Spokane, Portland & Seattle Railroad, permitting interchange of materials or products over fourteen foot runways at floor levels. Thus materials can be received or shipped by rail, truck or by water as desired.

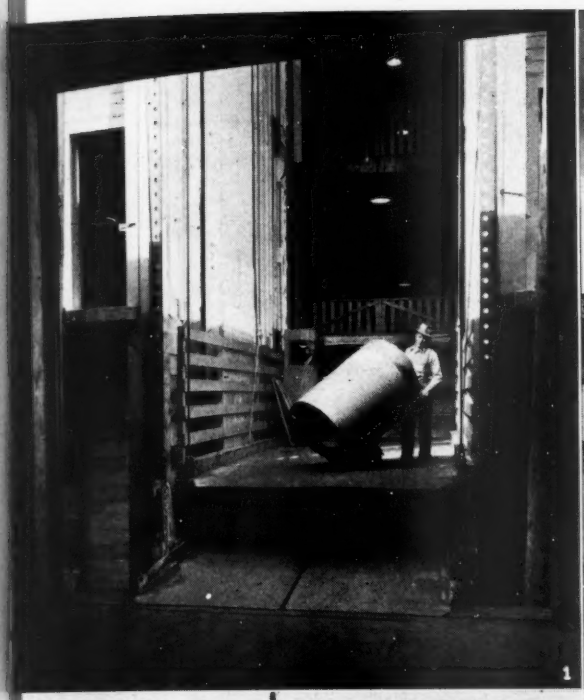
The method of storing stock is interesting. Each bay is numbered and a perpetual inventory is kept showing the size, grade and character of material stored in each bay. No space is reserved for any specific grade or product; rather the vacant space is worked to store stock somewhat in the order in which it will be shipped. Furthermore, stock is stored in complete units occupying as

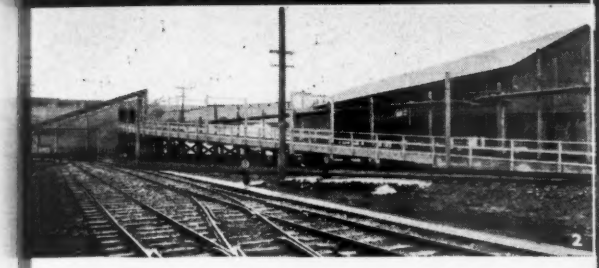
Aerial photo by Brubaker Aerial Surveys, Portland, Oregon

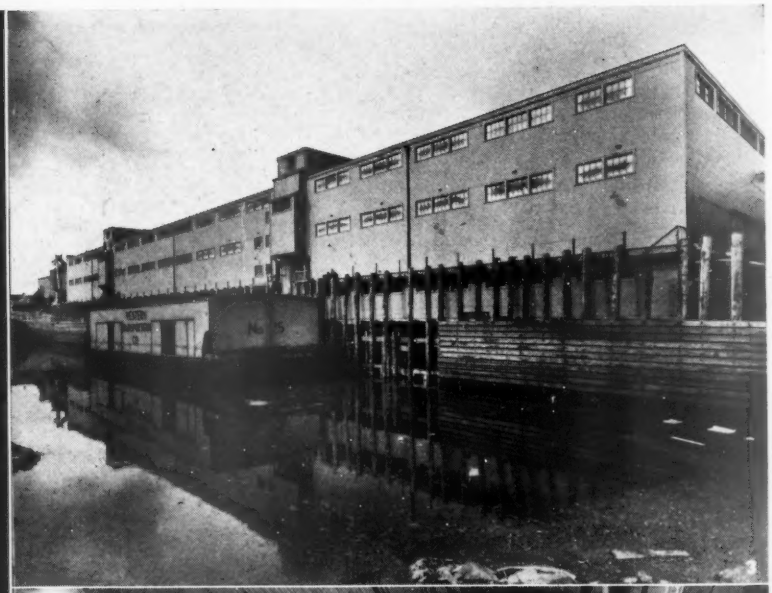
The above aerial photograph was taken in October, 1935, and shows the new Camas dock and warehouse fifty per cent completed. Fuel barges are at the key wharf and one of the large steel cargo barges is shown loading at one of the Barlow Marine Elevators, furnished by the Colby Steel and Engineering Company of Seattle.

The further extension of the dock is under construction extending upstream or to the right.

This view also shows the No. 3 warehouse with rail and truck connections between the mill, the new dock and No. 3 warehouse.







THE NEW CAMAS DOCK AND WAREHOUSE

No. 1 shows one of the two 7½-ton Barlow Marine Elevators delivering products from the plant into the side port of the barge. The Barlow elevators work from low water to all three floors of the dock and warehouse, so that cargo can be handled at any stage of the water in the Columbia River.

No. 2 shows part of the inter-plant railway system connected to the new dock and warehouse. The left hand track goes down an incline to the lower floor of the dock. The center track leads directly to the main floor. The third floor of the dock is served by the track system up the inclined road. The number 3 warehouse at the right is also served by the company's inter-plant railway system. Number 3 warehouse is used for truck and rail service.

No. 3 is a view from the water side or mooring basin, showing the new dock and warehouse complete with the two Barlow Marine Elevators in service, where two barges, each capable of handling between 300 and 400 tons can be loaded at one time. This is a neat, well designed wood dock of the best mill type construction. Local labor and materials were used throughout.

No. 4 is the second or main floor of the new dock and warehouse, showing the modern type of heavy mill construction with laminated wood floors covered with a resilient composition material. Notice how the engineers provided for the arrangement of the posts for the trusses so there would be no interference with the loading and unloading of the flat cars.

No. 5 shows one of the Elwell-Parker load carrying trucks bringing finished paper products from the number 3 warehouse through the covered runway to the new dock for shipment by boat. The lift bridge spanning the railroad track is clearly shown. The dock is connected to number 3 warehouse at both the second floor or ground level and the third floor or upper level.

little space as possible. For example, counter rolls are stored on the second floor. One size and grade will be stored from the center out in as narrow a pile as considered practical for the amount to be stored, the pile being carried from the floor to the top height rather than spread over the floor and then piled up. This conserves space.

Both the old familiar hand truck and the electric storage battery systems are employed in handling stock. The pallett truck system is also being tested.

Normal daily shipments from the Camas dock average about 350 tons and cover a very wide range of papers and paper products. The loading system is designed for economy in handling and transportation. The Western Transportation Company's boats make one round trip per day between Portland and Camas, returning an empty barge with each trip.

While the boats, which also carry cargo and handle the barge, are on the run between Camas and Portland, barges brought to the mill on the previous up river trip are being discharged of their load of mill supplies, which consists of all material used in the Camas paper mill. These barges are then loaded with paper and paper products for the return trip to Portland. This method saves the time of the tow boats.

The barges have steel hulls and give completely covered storage. The capacity of each barge is between 300 and 400 tons, but ordinarily around 250 tons are loaded on each barge depending upon the type of product. Material for delivery at the Oceanic and Interstate terminals, the main Portland docks used by the Crown Willamette Company, is in the main loaded on the barges. Material for delivery at other docks is usually loaded on the river boats which tow the barges. The empty barge at Camas is loaded with the various products of the mill while the tow boat is in Portland.

In building this new dock and warehouse at Camas one of the problems which had to be solved was the rise and fall of the Columbia River, the maximum difference between high and low water being about 25 feet.

The solution of this problem was accomplished through the installation of two Barlow Marine Elevators built by the Colby Steel & Engineering Company of Seattle. These elevators have two speeds, are fast, and give prompt access to the boats or barges, no matter what the water level may be. The capacity of the elevators are six and seven and one-half tons at 100 feet per minute, and ten tons each at 60 feet per minute.

Each of the two elevators is located in a bay in the river side of the dock. An adjustable steel apron is moved up and down so that it can always be adjusted to any river elevation and material can be trucked on the level to and from the barges or boats.

The design and arrangement of the dock is unique and original in many respects. Space limitations does not permit going into detail. The engineering features were carefully considered in planning the structure to care for the requirements of the plant and of the Western Transportation Company's barge line.

In the early stages of the proposed improvements, Mr. M. R. Colby, of the Colby Steel & Engineering Company of Seattle, was engaged to make a survey and report of the inter-plant movement of paper products as well as of raw materials. The purpose of the study was to find ways of more rapidly and economically handling the products.

The engineering and the details of construction were under the direction of Mr. H. N. Simpson of the Crown Willamette engineering staff. Mr. Ed. Tidland, connected with the Camas mill, served as resident inspector on the project. Actual construction of the dock and warehouse was awarded to the Hoffman Construction Company of Portland, Oregon.

The work was carried to completion according to schedules prepared by the engineers and is a credit to the company. It is the most modern dock of its type on the Pacific Coast.

CONTAINER CORPORATION TO BUILD KRAFT MILL AT FERNANDINA

The Container Corporation of America has announced its intention of constructing at an early date a kraft pulp and liner board mill at Fernandina, Florida, with an annual capacity of 120,000 tons.

The announcement was made by President Walter P. Paepcke at a meeting of the Eastern stockholders of the company in New York City.

Mr. Paepcke told the stockholders that if the stockholders approve the mill will be begun at once and completed in 15 months. He also outlined the company's refinancing plan which involves the marketing of $10,000,000 in new preferred stock consisting of 200,000 shares of a value of $50 each. The proceeds will be employed to retire all of the Container Corporation's bonds and debentures and for paying the cost of the new pulp and board mill.

He pointed out to his company's stockholders that the paper board and box industry as a whole showed a gain in production in 1936 of 21 per cent over 1929, and that, for the past 25 years the industry has shown an average yearly gain of 6 per cent.

The new Florida mill will replace the 20,000 tons of foreign kraft pulp now purchased by the company at around $40 per ton. Mr. Paepcke said that the new pulp mill should produce pulp for $30 per ton, thereby saving the company $10 per ton or $200,000 annually.

APRIL NEWSPRINT STATISTICS

Production in Canada during April, 1936, amounted to 258,721 tons and shipments to 267,296 tons, according to the News Print Service Bureau. Production in the United States was 76,470 tons and shipments 77,546 tons, making a total United States and Canadian news print production of 335,191 tons and shipments of 344,842 tons. During April, 25,224 tons of news print were made in Newfoundland, so that the total North American production for the month amounted to 360,415 tons. Total production in April, 1935, was 324,511 tons.

The Canadian mills produced 140,585 tons more in the first four months of 1936 than in the first four months of 1935, which was an increase of seventeen and four tenths per cent. The output in the United States was 5,724 tons or one and nine tenths per cent more than for the first four months of 1935, in Newfoundland 7,678 tons or seven per cent less, and in Mexico 6,967 tons less, making a net increase of 131,664 tons, or ten and eight tenths per cent.

Stocks of news print paper at Canadian mills were reported at 85,629 tons at the end of April and at United States mills 17,087 tons, making a combined total of 102,716 tons compared with 112,367 tons in March 31, 1936. There was still considerable tonnage waiting later water shipment.

SUPERINTENDENT'S MEETING AT GRAND RAPIDS JUNE 24TH, 25TH AND 26TH

The American Pulp and Paper Mill Superintendents' Association convention at Grand Rapids, Michigan is going to be a well attended meeting judging by the reports current the first of June.

At that time the Hotel Pantlind, headquarters for the convention, had on hand over six hundred reservations, and sixty-five of the available eighty booths at the Civic Auditorium had been reserved by manufacturers of equipment and supplies for the purpose of displaying their wares before the visiting superintendents.

This display of equipment and supplies is known as the First Annual Pulp and Paper Superintendents Exposition, and it is planned that it should be held each year in the future in conjunction with the Association's annual meeting.

The program will cover many phases of pulp and paper mill practice. Meetings will be divided into groups to simplify the problem of those attending, and to facilitate discussions.

Mr. F. J. Sensenbrenner president of the Kimberly-Clark Corporation and of the American Paper & Pulp Association will be the principal speaker. Besides the business program a very complete program of entertainment and sports has been arranged for both the ladies and the men attending.

Mr. Charles Champion, superintendent of the Miller Falls Paper Company, Miller Falls, Massachusetts, is president of the Superintendents' Association.

Mr. F. L. Zellers is general chairman of the Grand Rapids convention.

HAWLEY SEEKS TAX REFUND

Hawley Pulp & Paper Co., Oregon City, Ore., has started action in federal court in Portland, seeking to recover approximately $8,000 in processing taxes paid the federal government in 1934 and 1935. In the action it is contended that the money was erroneously collected under the Agricultural Adjustment Act and was paid under protest. Twenty payments are noted in the complaint as separate causes of action. These payments were for processing taxes upon paper towels.

This suit is the first filed in the Portland district in which recovery of processing taxes paid is sought.

CANADIAN PULP EXPORTS UP 15 PER CENT

Exports of pulp from Canada for the first three months of 1936 show an increase of 15 per cent over the same period in 1935, according to the Dominion Bureau of Statistics.

The first three months exports totalled 180,850 short tons valued at $7,331,605, compared with total of 157,180 short tons valued at $6,853,365 in the first three months of 1935.

CONTROL OF CERTAIN-TEED CHANGES HANDS

Control of the Certain-Teed Products Company of New York, which has a 38-ton per day plant at Richmond, California, for making roofing, building and other papers, has been acquired by the Phoenix Securities Corporation, an investment trust.

The investment trust has acquired 48 per cent of Certain-Teed's preferred stock which gives the right to elect the majority of the board of directors due to the preferred dividends being in arrears. Such power is given if the preferred dividends are in arrears two years and Certain-Teed has not paid any preferred dividends for seven years.

The Phoenix Securities Corporation has contracted to buy additional preferred shares. Three representatives of the Phoenix Corporation have been elected to the Certain-Teed board of directors: Mr. Wallace Groves, who is head of Phoenix; Mr. Edward A. LeRoy, Jr., and Mr. Walter S. Mack, Jr. Other directors elected were Mr. Walter W. Colpitts of the engineering firm of Cloverdale and Colpitts; Mr. Courtland Palmer, an attorney, and Mr. Albert E. Winter.

At the end of 1935 Certain-Teed reported assets of $21,327,000. It controls the Sloane Blabon Corporation, manufacturers of floor coverings.

A year ago the Phoenix Securities Corporation acquired a large interest in the Celotex Corporation and assisted in reorganizing the company.

THE NEWS PRINT SITUATION

Despite efforts of United States publishers to forestall a rise in the price of newsprint, manufacturers in British Columbia and Eastern Canada still expect that a substantial increase will be effective when the contracts are reopened this fall.

During the present summer lull news print men are reluctant to talk about prices. This is the quiet time in the industry and there is a tendency not to disturb things by introduction of the always controversial subject. However, there is a feeling of optimism and hopefulness that was not present a year ago, and it is based on the expectation of a steadily improving economic condition of the industry, based on an approximate ten per cent increase in newsprint consumption, gradual rehabilitation of some of the weaker mills and the seeming inevitableness of higher prices.

During the first four months of the present year there has been a continuance of the wide expansion in production that started last year. British Columbia mills have been operating at 100 per cent capacity for years, with Powell River Company and Pacific Mills, Ltd., both enjoying the advantage of tidewater connections and the fairly steady market in the western states and in Australia and the Orient. Now the eastern mills are staging a recovery, and from January 1 to April 31 there was an increase in production of 140,585 tons for all Canadian mills, with April, the last month for which definite figures are available, registering a gain of more than 37,000 tons over the corresponding month of 1935. Sales in April showed a greater increase than production, as indicated by the fact that stocks on hand in Canadian and United States mills were reduced by about 10,000 tons during the period.

Newsprint men in British Columbia and the east look askance at the report of the newsprint committee of the American Newspaper Publishers Association dealing with production of newsprint from yellow pine. This threat of competition, never seriously considered in the older newsprint producing sections, has been weakened to some extent by the big projected newsprint and hydro-electric development in Quebec recently undertaken by the Ontario Paper Company, which is a wholly owned subsidiary of one of the most important publishing organizations in the United States.

Operation of some of the largest Canadian producers under receivership has been an unsettling factor in the industry in recent years, and here also there appears to be reason for encouragement. Great Lakes Paper Company has been reorganized with the dangerous features of the original reorganization plan eliminated. A plan for the financial rehabilitation of Price Brothers has been approved by both classes of shareholders, but has been held up by the opposition—as one of the principal unsecured shareholders—of Saguenay Power Company, subsidiary of the Aluminum Company of America which, through another subsidiary, Pacona, Ltd., owns the bulk of the outstanding bonds. Action has been taken in the Quebec courts to have the plan approved nothwithstanding the opposition of Saguenay Company as a creditor, and in the meantime negotiations are reported to be proceeding looking towards a reapproachment between the interests behind the reorganization plan and the Aluminum organization.

In submitting the report of the Abitibi Company, another company which has been under receivership, the receiver-manager pointed out that at the request of the Ontario government the bondholders protective committee had been working on a plan of reorganization for the company. There may be some delav as liquidation of bank loans and other details remains to be completed.

Stabilization of the selling price of newsprint at $41 a ton this year was of material assistance to several companies which in the past have been at a disadvantage. Consolidated Paper Corporation had the benefit of three months' operation this year under the new price, and the report of the company, just issued, indicates the extent to which rehabilitation can be effected under a more reasonable price schedule. Net profits available for depreciation and bond interest were shown to be almost 120 per cent in excess of those for the previous year and equivalent to about 80 per cent of bond interest requirements before depreciation. On 1935 production of Consolidated a price of $43 a ton would have permitted the company to earn its bond interest requirements fully and set aside approximately $200,000 for depreciation.

RAYLIG SALES PROGRESSING RAPIDLY

Raylig, the road binder and surfacer developed by the Rainier Pulp & Paper Company of Shelton, Washington, is rapidly expanding its outlets under the direction of Mr. Wallace G. Drummond, Raylig Division sales manager.

Mr. Drummond's latest announcement states that Mr. Louis M. Diether of Vancouver, B. C., has been appointed British Columbia distributor for Raylig, and that Mr. Diether is seeking distributor rights for India.

A new industry comes to Puget Sound and a new Washington-made product taps the markets of the world, as the Rainier Pulp and Paper Company announces that it is ready for volume delivery of "Raylig" for application on traffic-bound highways and streets of America.

Raylig is a road binder, perfected after eight years of experimentation by the Department of Highway Research of the Rainier Pulp and Paper Mills, located at Shelton, Washington. It is the evaporated and chemically treated lignin liquor that is a residue of sulphite pulp manufacturing. Raylig is sprinkled on streets, feeder or farm-to-market roads, by an ordinary sprinkler wagon.

The cost, it is claimed, varies from $125.00 to $500.00 per mile, for the Puget Sound area, depending upon whether the product is used to merely kill dust or to construct macadamized surfaces of varying depths.

Raylig is being used effectively, according to Rainier Highway Research Department, in Mason, Thurston and Grays Harbor Counties; and on Bay Shore Drive; the Olympic Highway, and Five Mile Drive at Point Defiance Park, Tacoma. Test jobs are going down at Olympia Airport and Boeing Field, Seattle, according to Mr. W. G. Drummond, sales manager of the Raylig Division, with offices in Seattle, while the state of New Jersey has ordered 900,000 gallons for immediate delivery.

County Commissioners, Highway Engineers and Road Supervisors of the Puget Sound area, are showing great interest in the product and the possibilities it offers for low cost construction and maintenance, according to Drummond.

The cities of Yakima, Seattle, Tacoma, Olympia and Aberdeen have recently joined Puget Sound counties in a dust prevention and road improvement campaign that is attracting nation-wide attention. They are using Raylig road binder on hundreds of miles of unpaved streets and roads.

Yakima received its first tank truck of Raylig road binder May 1st, for application on city streets.

Tacoma has called for bids for surface treatment of 48,000 square yards along the Hylebos Water Way that comprises part of the industrial district of the city, and is preparing the grade for Five Mile Drive at Point Defiance Park, which will be treated soon. Airports at Olympia and Seattle have recently received test applications with satisfactory results.

Commissioners of Kitsap, Mason, Thurston, Grays Harbor and Lewis Counties are planning hundreds of miles of dust prevention and gravelled road improvement for late Spring and early Summer.

BELL-IRVING EAST

R. Bell-Irving, assistant general manager of Powell River Company, spent a few days vacation at Kamloops, B. C., this month prior to leaving for New York on a business trip.

NEW SULPHITE LOCAL FORMED IN EVERETT

A second local union of the International Brotherhood of Pulp and Sulphite Mill Workers was recently formed in Everett, Washington, by employees of the new Weyerhaeuser pulp mill.

HOW FRANCE IS PROTECTING DOMESTIC NEWS PRINT PRODUCERS

In the Swedish Wood Pulp Journal for May 1st is the following interesting information illustrating the methods employed by France to protect her own news print makers from excessive foreign competition.

"France is again about to change her system of protecting her home production of newsprint. In April 1931 the duty was raised from 12.50 to 20 Frcs. per 100 kg., while the earlier drawbacks allowed to manufacturers of newsprint were cancelled, and a production premium of 15 Frcs. per 100 kg. introduced instead. Certain adjustments of the regulations have gradually been made, but the preferential treatment of newsprint has now been stopped, and the general rate of 65 Frcs., as per the minimum tariff, shall now apply. An exception is made, however, for an annual maximum quantiy of 25,000 tons of newsprint complying with certain conditions, and the import conditions for this quantity will from time to time be settled by special regulations. This apparently involves a further reduction of the French newsprint import quotas. It is an open question whether this arrangement is in harmony with the voluntary quota agreement applied in recent years, supported by the French Government, between the consumers and the manufacturers at home and abroad, so much the more as it is reported that the above mentioned import conditions will involve new imposts on the imported newsprint.

"Generally speaking, there is at the present moment great uncertainty regarding the methods planned by the French authorities in support of the home production of pulp wood and products therefrom. Probably, however, some of the rumors of very drastic steps are exaggerated. What is known for certain so far is that the French Parliament, before rising, put an extra credit of 6 mill. Frcs. at the disposal of the Minister of Agriculture for the purchase of ground and its afforestation for the purpose of producing pulp wood, and a further grant of 2 millions to encourage the utilization of home-grown pulp wood. These grants are intended to be annual."

SPECIAL REPORT BY PAPER IMPORT COMMITTEE

A reciprocal trade agreement with Finland was signed at Washington on Monday, May 18, in which the United States reduces the rate of duty on sulphate wrapping paper to 20 per cent. This rate is applicable under the most favored nation treaties to similar merchandise imported from any other country except Germany, including particularly Sweden and Norway. The Finnish paper is sold under control of the Scandinavian cartel known as Skankraft, valued at 2½ cents per pound, which with duty and freight would mean a delivered duty paid duty cost Atlantic seaboard of about 3 cents.

Mr. Warren B. Bullock, manager of the Import Committee of the American Paper Industry, reports that—The reduction in duty by the Swedish agreement from the original 30 per cent provided in the Tariff Act of 1930 to 25 per cent caused an increase in imports of this paper from 4,000 tons in 1934 to a basis of 25,000 tons for 1936, estimated from the actual imports during the first quarter of the year.

The new rate of duty is 5 per cent lower than the 25 per cent rate fixed under the Underwood Act of 1913, the most typical Democratic low tariff law.

WORK OF THE IMPORT COMMITTEE

The monthly report of the Import Committee of the American Paper Industry tells of favorable action at various ports on importation of many kinds of paper. Sulphite Wrapping at Philadelphia was found to be undervalued, and mandarin paper, of the kind used by Firestone tires for its advertising literature, though claimed to be standard newsprint duty free, was classified for duty at Los Angeles and Atlanta.

Two importations at Boston of Norwegian paper entered as vegetable parchment at a duty rate of 2 cents per pound and 10 per cent are belived to have been grease-proof or imitation parchment, owing to the value of 7 cents per pound on one shipment and 6 cents on another. Best information available in this country is that there is no vegetable parchment mill in Norway. Glassine from Norway recently imported at Philadelphia as parchment, but the custom officials reclassified the shipment at the proper rate of duty.

Finnish pulpboard is being sold in the United States at about $50 per ton delivered duty paid, and a question whether the shipments are undervalued has been decided favorably to the importers. Such board is being sold in Finland at $30 per ton, and the United States price of $50 involves a profit of $9 per ton. The small amount sold in the Finnish home market, while sufficient to fix dutiable value for United States Customs computations, might readily be sold at a loss compensated for by the saving accomplished in United States duties on the large quantity imported. An unusual phase of the situation is that the same home market value has been established for laminated board as for the solid board, and by the same method. Imports of the solid board in February totaled 500 tons, an increase of 350 tons over the shipments for the same period in 1935.

The United States Court of Customs and Patent Appeals has decided that on advance in dutiable value of groundwood printing paper imported from Canada was void because the Buffalo collector of customs did not examine the proper proportion of 224 rolls of paper, but only examined seven rolls of the shipment. Under the law ten per cent of all packages of imported merchandise must be examined, unless exempted by special regulation of the secretary of the treasury. The secretary authorized the examination of a lesser number, but the importers claimed the authorization, being in letter form was not a "special" regulation, and that therefore the appraisement was void. By thus claiming an illegal appraisement in a case in which the alleged illegality was in the interest of the importer the advance in value of 25 cents per hundred pounds was nullified.

Cases continue to accumulate in the United States Customs Court in which importers of paper claim a 20 per cent reduction from the normal duty rate because of the concession of this percentage granted Cuban produce. Cases in which this claim was made in court in April include the following:

German wrapping paper, supercalendered both sides (imported at Boston).
German tracing paper.
Japanese Wallpaper.
German drawing paper.
German metal decorated paper (four shipments).
German carbonizing tissue.
Finnish pulpboard.
Japanese tissue paper.
English rotogravure photographic tissue.
German papeterie.
German miscellaneous paper (five shipments).

The long battle over the classification of bristol appears to have been closed, and several hundred cases involving such importations are being dropped as they reach the United States Customs Courts. Fourteen such cases were dropped in Philadelphia in April. The importers have finally lost their claim that the duty rate is that provided for cardboard, of 10 per cent. What the effect will be of the reduction in duty granted under the reciprocal trade agreement with The Netherlands remains to be seen, as it has not yet been effect long enough to change the trend of imports. A report to the Import Committe from Amsterdam shows that since the Import Committee carried through the cases in customs courts to prevent the admission of such bristol at the 10 per cent cardboard rate, exports from Holland have fallen off sharply. The United States was formerly the chief market for the Netherlands bristol, exports totaling about 4,500 tons per year. That figure has now dropped to less than 200 tons.

NEW B., M. & T. SAMPLE BOOK

"Papers in Color" is the title of a very interesting promotional booklet just issued by Blake, Moffitt & Towne, San Francisco, for distribution to their customers over the Pacific Coast. This is a four-page spiral bound book, each page containing eight swatches of samples of all the colored lines of book, bond and cover paper carried by the house on the coast. Printers and other customers can see at a glance the colors available.

The idea is credited to Reeve T. Watson, advertising manager of Blake, Moffitt & Towne, who spent two years working it out. Return postal cards inclosed with the books have been returned in large numbers by recipients with very flattering comments.

REPORT OF SURVEY COMMITTEE COVERING COST STUDIES and ACCOUNTING

By E. A. BREYMAN*

A meeting of this committee was called by the chairman last Sunday, and duly convened some five thousand feet up in the air between the "City that knows how" and the city on which an alleged humorist dubbed the title of "the Angels". The chairman, as is customary, upbraided the members of his committee for being lazy and dumb, which statement was later put in the form of a motion and unanimously carried.

The chairman further stated that it was becoming increasingly difficult for him to think of any ingenious methods of presenting the report of the committee, calculated to keep awake those compelled, by politeness, to listen. The committee, as usual, agreed with the chairman and observed a thundering silence.

This left the chairman both figuratively and literally up in the air, where he still remains groping for a point of contact with those whose feet are supposed to be on the ground.

Even though figures make music, the constant humming of the same tune is excellent cause for justifiable homicide—and yet the Survey Committee must perish without figures, which are themselves lacking in emotional appeal unless clothes in a bathing suit or tights.

Perhaps some members of the association are, like the chairman, up in the air, also, even after reading Mr. Beckwith's splendid report, "Strictly Business", rendered by him as Chairman of the Survey Committee at The National Paper Trade Association convention in February. If you have not read this report, if you have not compiled comparative figures for your own business—you are urged to do so. To cover the same ground as did Mr. Beckwith would constitute unproductive and uninteresting repetition. This is your job personally.

Rather would I borrow from the report certain features, and even venture into the quicksands of impropriety, to develop for you certain figures of interest and importance to our industry.

This year I confine my remarks to two types of sales only—the Indirect and Direct Mill Shipment.

The Survey Report for 1935, which represented 65% of the sales of members of The National Paper Trade Association, developed the following figures for the average Dual House:

Average Indirect Mill Shipment sale, $77.28 with 15.89% Trading Margin.

Average Direct Mill Shipment sale, $169.10 with 7.98% Trading Margin.

Frankly, if these figures had not been compiled by honest men, they would seem to be screwy as we always have looked upon non-spot sales as being those of large size—which, evidently, they ain't.

The survey also developed that the expense of handling these sales was as follows:

Indirect M/S, 86c per order plus 6.7% of cost of goods;

Direct M/S, 70c per order plus 6.03% of cost of goods;

to which must be added 4.77% of total net sales for outside selling expense.

	Indirect Mill Shipment			Direct Mill Shipment	
Average Sale		$77.28			$169.10
Trading Margin 15.89%		12.28	7.98%		13.49
Expense of Handling					
Fixed Expense per order	$ .86			$ .70	
Variable Expense 6.7% of cost	4.36		6.03%	9.38	
Sales Expense 4.77% of selling price	3.69	8.91	4.77%	8.07	18.15
Net Operating Profit		$ 3.37			
			Net Operating Loss:		$ 4.66

This doesn't make sense. As expert paper merchants we know—never mind how—that direct business is profitable at any mark-up—why it helps "carry the overhead"—"whatever you mark-up you earn." This is just another nut idea of some long-hair who doesn't understand the fine art of merchandising.

But the expense-of-doing-business factors show an average profit per spot order of 58c, this must be too high if the profit on Direct Mill Shipment orders is too low.

Let's come down from the air—maybe we've been kidding ourselves—maybe the long-hairs are right and we've been losing money on 27.8% of our business, which is the average amount of direct mill business done last year.

Here is the way the average dual paper merchant operated last year, if we can believe the Survey Committee's figures:

	Monthly
On Warehouse Sales he made net	$1,932.00
On Indirect Mill Shipment sales he made net	488.00
On Direct Mill Shipment sales he lost	550.00
On all sales he made	$1,870.00

Here's something worth looking into. If Mr. Average Paper Merchant isn't even swapping dollars on 28% of his business, isn't there anything he can do about it?

There is. In place of getting excited about direct mill business at 8% profit on which he loses over 3%—maybe he had better find some way of getting 12% or 13%. If he can't, maybe he better let his dumb-bell competitor take it. He'll go broke that much faster, which mightn't be so bad at that.

This is why I say, compile and compare your figures with those of The National Paper Trade Association. Find out not only where you are making your profits, but where you are taking your losses. The gold in them thar hills can only be had by digging for it.

Once again I have had to descend to dry land and possibly drier figures. I am contrite and apologetic therefor, but refuse to take the count. It's the fault of your President and those who preceded him and the correction thereof lies in the hands of your incoming President. If he exercises the prerogatives of his office I'll be relieved of preparing and you of listening to such reports as this—and all of us can go on losing money without being annually annoyed about it.

*Committee of one. Presented at the meeting of the Pacific States Paper Trade Association, Del Monte, California, May 14, 15, 16, 1936. Vice-president and operating manager Zellerbach Paper Co.

MAX SCHMIDT PASSES AWAY

Death came May 23 to Max Schmidt, 86, San Francisco, founder and manager of the Schmidt Lithograph Co., which he established with a few dollars 64 years ago and which has grown to be one of the world's largest lithographing companies, with plants in San Francisco, Seattle, Los Angeles and Honolulu. Mr. Schmidt is survived by a son, Richard Schmidt, vice-president of the company, and a daughter, Mrs. Matilda Wuthmann.

Max Schmidt ran away from his home in Germany when he was 14 years old and shipped as a cabin boy to San Francisco where he got a job driving a bakery truck at $25 a month. When he was 22 years of age, he obtained contracts for a few wine labels and started his lithographing business. The fire of 1906 nearly wiped him out but he started again and at his death his properties were valued at approximately $2,000,000. He was a former president of the National Association of Lithographers and of the German Benevolent Society of San Francisco.

ANGELUS MOVES

On April 1, the Angelus Paper Excelsior Products Co. moved into new quarters at 1919 Bay St., Los Angeles, where they occupy two buildings, the converting and the excelsior branches being separate.

The company converts many kinds of roll paper specialties, from adding machine paper and ticker tape to serpentine. Mr. F. C. Van Amberg is sole owner of the company.

COMMERCIAL HAS EXCLUSIVE LINE

Commercial Paper Co., San Francisco, report they are now exclusive northern California distributors for Action Ledge, manufacturedd by the Chemical Paper Manufacturing Co., Holyoke, Mass.

T·R·A·D·E • T·A·L·K

of those who sell paper in the western states

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HUELAT and BANKS HONORED BY JOBBERS

At a dinner meeting at the Jonathan Club of Los Angeles May 28, paper jobbers of Southern California tendered their congratulations and assurances of whole hearted support to Walter W. Huelat, new president of the Pacific States Paper Trade Association, and to Roy E. Banks of Long Beach, who was elected vice-president of the organization at Del Monte last month.

The tribute was a merited recognition from local paper distributors for the unselfish efforts both of these men have put forth in the interests of the industry as a whole, and served to assure Mr. Huelat, in his leadership of the merchant group for the next twelve months, of the hearty support of the trade in the Southland.

Some fifty paper merchants of Los Angeles, Long Beach, Fullerton, San Bernadino, etc. were present. Mason B. Olmsted, vice-president of the Zellerbach Paper Co. served as toastmaster, proving his qualifications for the job not only by his ease and wit in handling the gathering, but also by publicly introducing every one of the 50 men there, without hesitation nor a single mistake.

W. B. Reynolds, secretary of the local paper trade conference, read a number of telegrams and letters from well wishers and from those unable to attend. Included were messages from Carl Fricke, who had just landed at New York on his return voyage from Europe; Arthur H. Chamberlain secretary of the National Paper Trade Association at New York; Victor E. Hecht, executive vice-president of the Pacific States organization at San Francisco, and H. Arthur Dunn, secretary of the Pacific States Paper Trade Association.

Letters were also received from George G. Cobean, general manager of the J. W. Butler Paper Co. in Chicago, and vice-president of the fine paper division of the National Paper Trade Association; from Harold L. Zellerbach of San Francisco, a former president of the national group, and from J. Arthur Kelly of the Kelly Paper Co., Los Angeles. J. Y. Baruh, who had just left on a vacation trip, sent his regrets and congratulations, as did Tom O'Keefe of the Sierra Paper Co., and Arthur W. Towne, past president of the coast association, and Wm. E. Taverner.

As the new vice-president of the trade group, Roy Banks told the jobbers what had transpired at Del Monte, and how the jobbers in various sections are expected to cooperate to harmonize local wrapping paper and bag markets.

Following him, Sam Abrams of the U. S. Paper Co. pointed out that the men at the dinner controlled a very large percentage of the paper business in Southern California, and that it was in their power to control conditions by working together. He suggested a monthly dinner for the jobbers, to promote better understanding between the competitors.

Ted Corcoran of the Corcoran Paper Co., Fullerton, Calif., seconded this thought, saying that he felt price would take care of itself if confidence between the jobbers is established. Roy Le Grant of Taverner & Fricke echoed this sentiment.

Introduced as the oldest man in the paper business here, from the standpoint of experience—36 years in the employ of one firm—T. M. Densison of Blake, Moffit & Towne, paid Mr. Huelat a fine and sincere tribute, sounding the keynote of the meeting in honor of the new officers. He read a quotation printed on the back of the dinner menu—"Understanding and co-operating with one another in any industry, and constant education in sound, ethical business practices should promote market harmony and help maintain satisfactory merchandising conditions." The new president, Mr. Denison said, needed action as well as confidence and sentiment. "If you fellows will just follow his lead," he concluded, "you'll get somewhere."

After telling what has been accomplished in the Long Beach and Orange County area by the paper merchants there, through cooperation and confidence in each other, George Ward of Ward, Davis & Dunn suggested that the same thing could be done on a larger scale in the metropolitan area. In compliment to Roy Banks, one of his friendly competitors, he said, "He's honest, he's fair, and he knows his business."

R. R. Whiteman spoke briefly in congratulation to Mr. Huelat and Mr. Banks, pledging his support, and then F. M. Couch recently retired manager of the Los Angeles division of Blake, Moffitt & Towne, was introduced by Mason Olmsted as one of the "old guard." His remarks summed up to the statement that on the use of the suggestions put forward in a meeting of this kind, rests success or failure in the betterment of conditions, beyond the mere expression of such thoughts and sentiments.

In the place of honor as final speaker of the evening, was Walter Huelat, new president, who, despite the fine things that had been said about him, accepted the challenge with becoming modesty, and talked to the paper merchants right from the shoulder.

"Show me an industry with a good strong, regulated conference of trade association," he said, "and I'll show you one that is making money. And after all, that is what we all are in business for. An industry without such cooperation is usually in the red.

"That this group is here tonight, is evidence that you are interested in cooperative work, and are willing to take part in an effort to get results."

Mr. Huelat pointed out that prices are the effect, not the cause, and that common ordinary understanding and confidence are the requisites in correcting defects in the marketing system.

"Let the golden rule work and make money for us," he concluded.

As the meeting adjourned, Mr. Reynolds read a message from the Paper Mill Men's Club, who were meeting in Beverly Hills, inviting the group to join them at the conclusion of their session. A number of the jobbers accepted and spent the remainder of the evening with the mill men.

Reservations for the Huelat-Banks Dinner

Mr. F. M. Couch, Mr. W. W. Huelat, (Guest); Mr. R. E. Banks, (Guest); Mr. S. J. Coffman, Mr. W. B. Reynolds.

Zellerbach Paper Company

Mr. Mason B. Olmsted, Mr. Gordon Murphy, Mr. John Kehres, Mr. Philo Holland, Mr. C. A. Breckenrindge, Mr. Bert Myers.

Blake, Moffitt & Towne, L. A.

Mr. T. M. Denison, Mr. R. R. Whiteman, Mr. L. C. Connor, Mr. W. I. Winn, Mr. R. E. Cripon, Mr. Ralph Earlandson, M. L. T. Cooney, Mr. Lynn Oviatt, Mr. Lyle Simpson.

Blake, Moffitt & Towne, L. Beach

Mr. J. C. Moffitt, Mr. Houver Hinnman.

Corcoran Paper Company

Mr. Ted Corcoran.

Ward, Davis & Dunn

Mr. George Ward.

Badger Paper Company

Mr. Sid Calof, Mr. Ernie Calof, Mr. Al Kaufman.

United States Paper Company

Mr. Sam Abrams.

Sierra Paper Company

Mr. T. F. O'Keefe.

Taverner & Fricke

Mr. R. E. Le Grant.

Fred H. French Paper Company

Mr. Oliver E. French, Mr. O. M. Myers, Mr. G. H. Wood, Mr. V. W. Hosmer.

Ingram Paper Company

Mr A. J. Nelson, Mr. W. H. Ballentine.

Union Paper Supply Company

Mr. C. Y. Arima.

Gordon Jenkins Company

Mr. Gordon Jenkins.

General Paper Company

Mr. Lew Gronich, Mr. Ross Devean.

Long Beach Paper & Notion Company

Mr. W. C. Fricke, Jr., Mr. C. Schilling, Mr. T. Banks, Mr. P. Sheller.

American Paper Company

Mr. F. B. Hartman.

Paper Supply Company

Mr. L. A. Otto.

Barnum and Flagg

Mr. Harold Barnum, Mr. Norton H. Barnum.

E. H. Polkinghorne Company

Mr. W. A. Reed, Mr. Albert Martin.
Mr. John E. Brown, Southern California representative for Pacific Pulp and Paper Industry.

PAPER MILL MEN MEET

A semi-monthly dinner-jinx of the Paper Mill Men's Club of Los Angeles was held May 28, when the group met at the Beverly-Wilshire Inn at Beverly Hills. Business was dispensed with, aside from a short talk by President Edward N. Smith, in which he urged regular attendance by all members in order to obtain maximum benefit from their membership.

Charles Spies was chairman of the committee that arranged the meeting, and took personal charge of the entertainment features, a fact which itself speaks for the quality of the floor show that was staged. Lester Remmers, Louis Wanka and Harold Melville filled out the committee list.

After dinner the mill men were joined by a number of the paper jobbers, who had been meeting in honor of Walter Huelat and Roy Banks, and the evening was rounded out in the usual enjoyable style.

BUSINESS IS GOOD

"Business is ahead of last year," says Ben Levison, San Francisco paper mill representative. In fact business is so good with Ben that he just bought a fine new De Soto automobile and now his family wants him to take them on a vacation trip covering Zion National Park in Utah and the Boulder Dam in southern Nevada.

One of Mr. Levinson's principals, the Wrenn Paper Co., Middletown, Ohio, is issuing a very snappy house organ, "The Wrenn House" and sending it to all persons interested in absorbent papers. The Wrenn company makes blotting papers exclusively and has a free design and copy service for customers interested in advertising blotters.

No blotting papers are made on the coast.

McCLEAN PASSES AWAY

Harry W. McClean, 70, died in Oakland June 4. Mr. McClean was a salesman with the General Paper Co. at the time of his death and previous to this connection he was in the paper business for himself and later manager of the Blake, Moffitt & Towne branch in San Jose.

COCHRAN AND McFALL

Andrew H. Cochran, San Francisco, representative on the coast of Dill & Collins, Inc., and Wheelwright Papers Inc., made a trip to the northwest with J. W. P. McFall following the Pacific States Paper Trade Association convention at Del Monte in May. Mr. McFall is a pioneer paper jobber of Portland.

COLTON ATTENDS CONVENTION

Louis Colton, vice-president, Zellerbach Paper Co., San Francisco, was in New Orleans in June attending the convention of the National Association of Purchasing Agents. Mr. Colton formerly was head of the San Francisco association.

MRS. PALM TO NEW YORK

Mrs. Glory Palm, Zellerbach Paper Co., San Francisco, took a trip to her old home town of New York in June on vacation. Mrs. Palm is assistant to V. E. Hecht, vice-president in charge of promotion.

TAYLOR MOTOSTEEL EVENACTION VALVES

Again, the old gives way to the new. The completely redesigned line of Taylor Motosteel Diaphragm Valve Motors, manufactured by the Taylor Instrument Company, is the first to employ an all-steel welded construction. This new construction is lighter in weight, stronger, and has greater resistance to shock and strains than the cast iron type. Other innovations include:

A smoother, quicker-acting, and more powerful valve motor is obtained by—a larger molded diaphragm of advanced design. Formed impressions in the top plate which provide freer access of air pressure to the diaphragm in starting, thus insuring a greater effective initial force. And a larger diameter spring gives greater initial compression, less hysteresis, and more accurate response.

A ball-bearing, roller-bearing stem guide insures a free rolling action throughout the entire stroke.

Spring and spring adjusting nut, as well as other moving parts, are fully enclosed, yet are readily accessible for adjustment or maintenance by removing the side plates.

Valve position indicator readily establishes the valve opening.

All parts are specially treated to resist corrosion.

TAYLOR FULSCOPE INDICATING CONTROLLERS FOR TEMPERATURE AND PRESSURE

For many processes where close throttling control is imperative but a record of the processing is not essential, the Taylor Instrument Companies, Rochester, N. Y., have just put on the market a moderately priced, highly adaptable, air-operated controller of the indicating type.

Many of the design and performance features of this new instrument previously have been available only in the Taylor Fulscope Recording Controllers; hence the name, Fulscope Indicating Controller. Practically every advantage of a custom-built instrument is possible through the great diversity of optional construction features. But of even greater importance is the simplicity of the numerous adjustments by means of which the controller may be adapted to any changes in future processing requirements.

The outstanding features are as follows:

Either high-range or full-range sensivity, as required. The former for processes having small time lags; the latter for time lags of any magnitude. Both are fully adjustable by turning a graduated dial.

The control point may be adjusted to any value within the control range. Direct-set feature is optional.

Controller action may be quickly reversed in the field by altering the position of a link.

Many standard control ranges to choose from within the limits of minus 100 and plus 1200F., or full vacuum and 3000 lbs. pressure. Control ranges are interchangeable.

Temperature controllers may be equipped with mercury-, vapor, or gas-actuated tube systems.

The large scale with bold numerals and graduations enable the operator to make accurate observations from a distance.

The smartly designed, black finished cast-aluminum case is available in both face and flush mounting styles.